DOCUMENT RESUME

ED 248 086 RC 014 934

TITLE Occupational Resources: Read about Varied Occupations. CHOICE (Challenging Options in Career Education).
INSTITUTION Mid-Hudson Migrant Education Center, New Paltz, NY.; Putnam and Northern Westchester Counties Board of Cooperative Educational Services, Yorktown Heights, N.Y.; Ulster County Board of Cooperative Educational Services, New Paltz, N.Y.
SPONS AGENCY Office of Elementary and Secondary Education (ED), Washington, DC. Migrant Education Programs.
PUB DATE 80
GRANT 28-84-0023
NOTE 266p.; For Spanish version, see RC 014 935. For related documents, see RC 014 933-946. Best copy available.
AVAILABLE FROM CHOICE, P. O. Box 250, New Paltz, NY 12561 ($8.00, plus shipping).
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF01/PC11 Plus Postage.
DESCRIPTORS Career Awareness; Career Choice; *Career Education; High Interest Low Vocabulary Books; High Schools; *Instructional Materials; *Job Analysis; Job Skills; Language Arts; Mathematics Skills; *Migrant Education; *Occupational Clusters; *Occupational Information; Secondary Education
IDENTIFIERS *CHOICE (Career Education Curriculum)

ABSTRACT

Part of a two-level career education curriculum initially developed for migrant children, the book is the first of three secondary level texts designed to provide high school students with self-awareness, job and role information, and decision-making/goal attaining information related to career education. The text provides job and role information on 60 jobs in 15 career clusters defined by the United States Department of Labor: agribusiness, fine arts and humanities, business and office, communication and media, construction, consumer and homemaking, environmental control, health and safety, hospitality and recreation, manufacturing, marine science, marketing and distribution, personal services, public services, and transportation. The book defines each cluster, then uses a story, cartoon, interview, fact sheet, or poem to describe each job. Each job description in the text is followed by a short quiz. Illustrated with line drawings and stick figures, the book has been written for three reading levels: third grade, fifth grade, and high school. (SB)

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OCCUPATIONAL RESOURCES

READ ABOUT VARIED OCCUPATIONS

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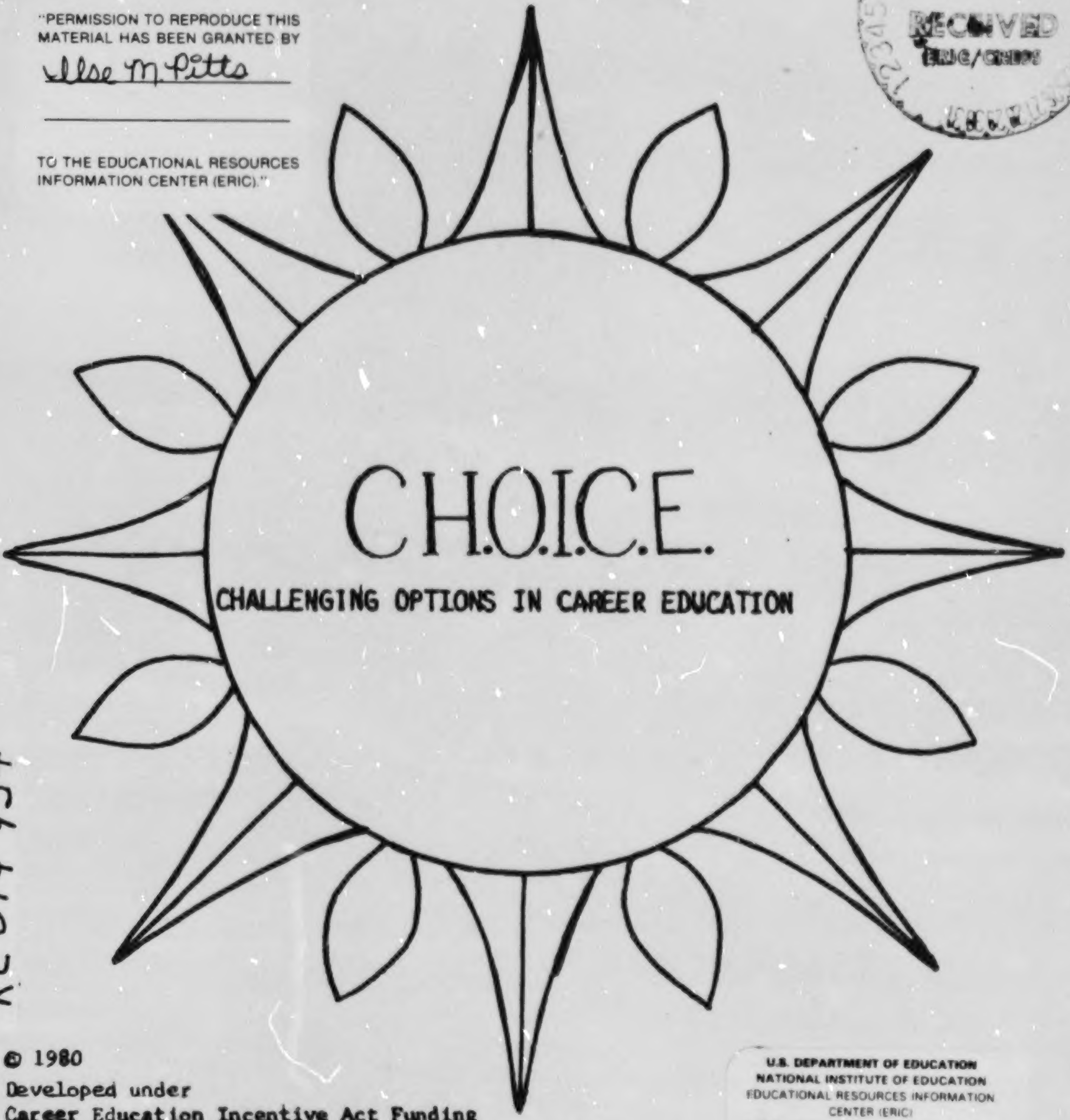

C.H.O.I.C.E.

CHALLENGING OPTIONS IN CAREER EDUCATION

RC 014 934

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Developed under
Career Education Incentive Act Funding
Bureau of Guidance, NYSED
Edward Strack, Chief

Project Operator: Ulster County BOCES
Jack Roosa, Superintendent

GR-28-84-0023

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CHOICE development began in 1979 as a result of a study indicating that, whereas migrant children and middle class youth had similar career aspirations in the early grades, the career information, self awareness and decision making skills available to migrant children in the later primary school years were severely limited. Although the development and overall design of the curriculum was done with migrant youth in mind, use of the curriculum has been by migrant and non-migrant youth. Funding for the development and production of the materials has come from a variety of sources including CETA, the Career Incentive Act, and Migrant Section 143. There would appear to be an overall need for the type of information CHOICE provides on the part of both migrant and non-migrant youth. Therefore at present the intended audience would be all of our school age youth (including high school dropouts).

The CHOICE curriculum is built on the three strands of career education: (1) self awareness, (2) job and role information, and (3) decision-making/goal attaining and is designed on two levels. (The materials have been successfully used, however, in the upper primary and lower secondary in a non-absolute fashion crossing over the indicated level boundaries.)

The first level, Basic CHOICE, is for students in grades K through 6. Each unit, B1-B7, includes: (1) a pre- post-test, (2) a consumable student log, (3) a teacher log, and (4) a set of a minimum of 20 activity folders.

The pre- post-tests for B1-B4 are in picture format for the student with an accompanying teacher administration guide which indicates the exact wording for each question. The tests for B5-B7 are in a written format with an accompanying teacher administration guide which indicates directions and the exact wording for each question should the teacher decide to read the questions to the students. Answer keys for all tests are available and included with the basic set of CHOICE materials.

The consumable student log and accompanying teacher log contain the Job and Role information for each unit. Each unit, B1-B7, contains information from two of the U.S. Department of Labor defined career clusters. Each log covers at least five occupations of careers from each of the two clusters. The student log contains worksheets related to language arts skills using career related information. Worker stories in B1-B4 are found in the teacher logs and designed to be read to the students. Worker stories in B5-B7 are contained in both the student and teacher logs. The teacher logs contain all the student log pages in addition to the stories, for B1-B4, and additional suggested activities and career related vocabulary, for B5-B7. All the teacher logs contain suggested answers to the student exercises, but it is emphasized that any logical student answer is to be accepted.

The activity folders on each level are divided into three sets, one for each of the career education strands: (1) self awareness, (2) job and role information, and (3) decision-making/goal attaining. Each set of folders contains activities, stories, poems, and game-type activities all designed to help the student learn about career education and himself or herself.

The Advanced level of CHOICE materials consists of three texts. Again the organizational and developmental format was based on the three strands of career education and the 15 career clusters.

The first of the three texts is OCCUPATIONAL RESOURCES. This is the job and role information text. It contains 60 selections, four from each of the 15 career clusters, written in story, cartoon, interview, fact sheet, and poetry format. Each selection contains information on the tasks, skills, training and tools necessary to the career or occupation as well as the reading and mathematical requirements for the job. Selection of the careers covered was based on two factors. One, both entry level and advanced training level jobs were chosen within each cluster. Two, actual practicants of the job or occupation were interviewed as to their tasks, skills, training and tools. After the selections were written these same people were asked to review the stories for accuracy. OCCUPATIONAL RESOURCES has been rewritten on both the third and fifth grade reading levels as well as in the original high school reading level. The information and technical vocabulary has been maintained in the third and fifth grade reading levels but other parts of the stories, cartoons and interviews have been adapted to make reading easier.

The second text of the Advanced materials is CAREER NOTES. This volume contains the self awareness and decision-making/goal attaining information. It is designed to be used in individual sections depending on the need of the student. Again various formats have been used, including poetry, cartoon, and game activities to provide interest for the students. The sections included in CAREER NOTES are described in the Overview booklet.

The third text of the Advanced materials is MISSION INFORMATION. MISSION INFORMATION is a manual designed to accompany work exploration and experience programs. There are three sections; they are designed to be used independently of each other. The first is on interviewing a worker to obtain information about his/her job or career. The second is a "shadowing" guide to lead students through a worker shadow experience. The third section is a guide to a work experience program. Each section leads the student and teacher step by step through a discovery process. The student learns where and how to acquire information and how to organize his/her self knowledge and job knowledge in order to make effective decisions.

All of the Advanced materials are presently available in Spanish as well as in English. The Basic materials are in the process of being prepared in Spanish. The Spanish editions are NOT direct translations of the English, rather we have tried to produce a parallel version which makes sense in Spanish.

OCCUPATIONAL RESOURCES
(Read About Varied Occupations)

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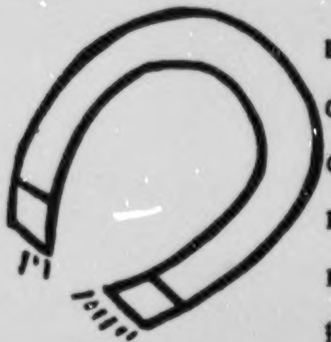
*** EACH SELECTION INCLUDES WORK RELATED INFORMATION SUCH AS:ON-THE-JOB TASKS, TOOLS & EQUIPMENT, WORK PLACES AND CONDITIONS, TRAINING & ADVANCEMENT POSSIBILITIES, USES OF READING, MATH, AND OTHER SKILLS ON THE JOB.

OCCUPATIONAL RESOURCES

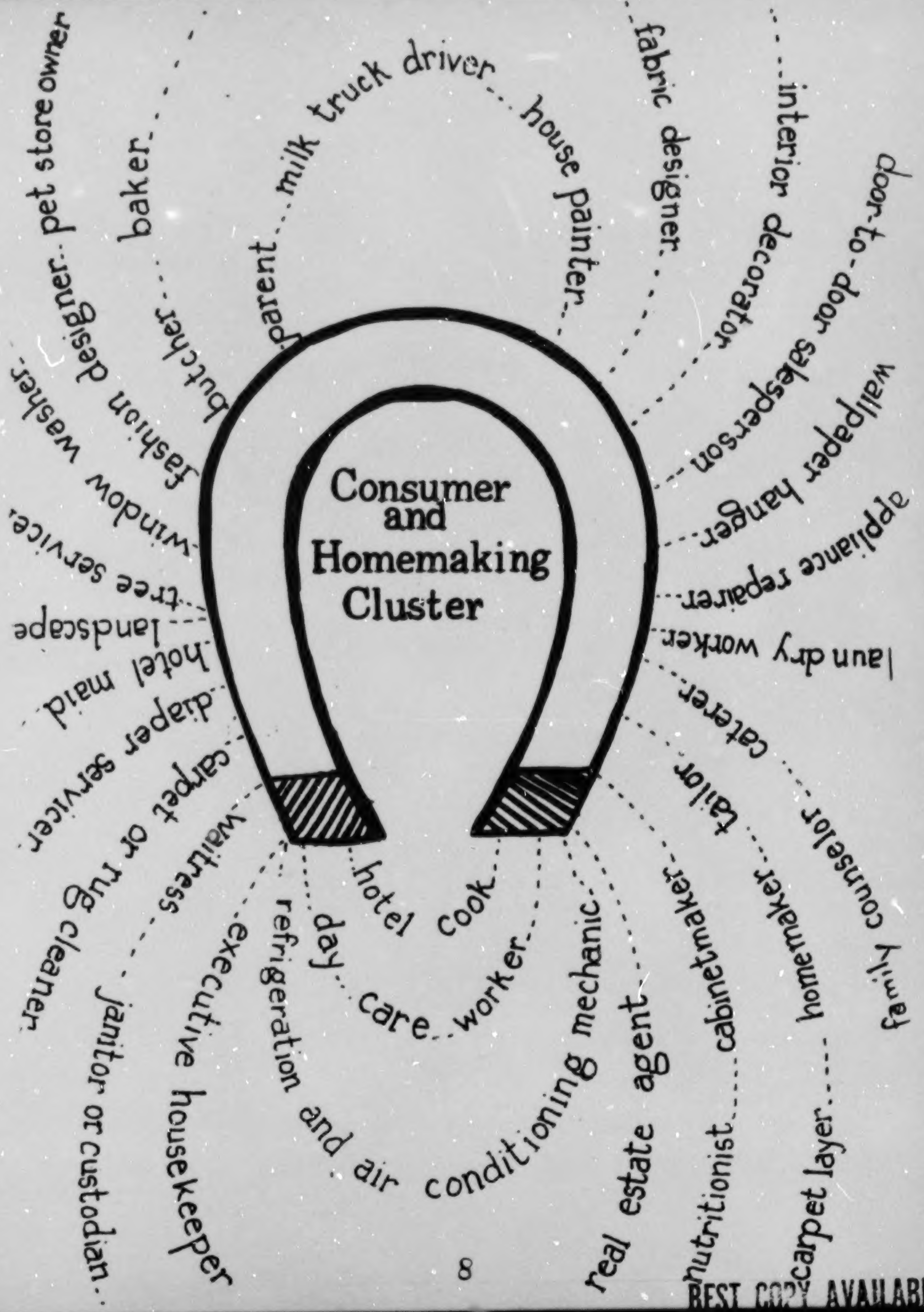
This section of your workbook presents information about ten workers. Five of them work as part of the CONSUMER AND HOMEMAKING CAREER CLUSTER. Five others work as part of the ENVIRONMENTAL CONTROL CAREER CLUSTER. CAREER CLUSTER is simply a name for a group of occupations that are alike in some way. Workers from the CONSUMER AND HOMEMAKING cluster help to produce and improve food, clothing, home furnishings, and care of family members. Workers from the ENVIRONMENTAL CONTROL cluster help to protect land, water, air, and healthy relationships among all living things.

The workers you observe in your community may fit into one of these clusters. Other CAREER CLUSTERS are:



AGRIBUSINESS
BUSINESS AND OFFICE
COMMUNICATION AND MEDIA
CONSTRUCTION
FINE ARTS AND HUMANITIES
HEALTH AND SAFETY
HOSPITALITY AND RECREATION
MANUFACTURING
MARINE SCIENCE
MARKETING AND DISTRIBUTION
PERSONAL SERVICES
PUBLIC SERVICES
TRANSPORTATION.

Where do some workers that you've observed fit in?


Consumer and Homemaking Cluster
pet store owner
baker
milk truck driver
house painter
fabric designer
interior decorator
door-to-door salesperson
parent
butcher
fashion designer
window washer
tree service
landscape
hotel maid
diaper servicer
carpet or rug cleaner
janitor or custodian
waitress
executive housekeeper
refrigeration and air conditioning mechanic
day care worker
hotel cook
real estate agent
nutritionist
cabinetmaker
carpet layer
homemaker
tailor
family counselor
caterer
laundry worker
appliance repairer
wallpaper hanger

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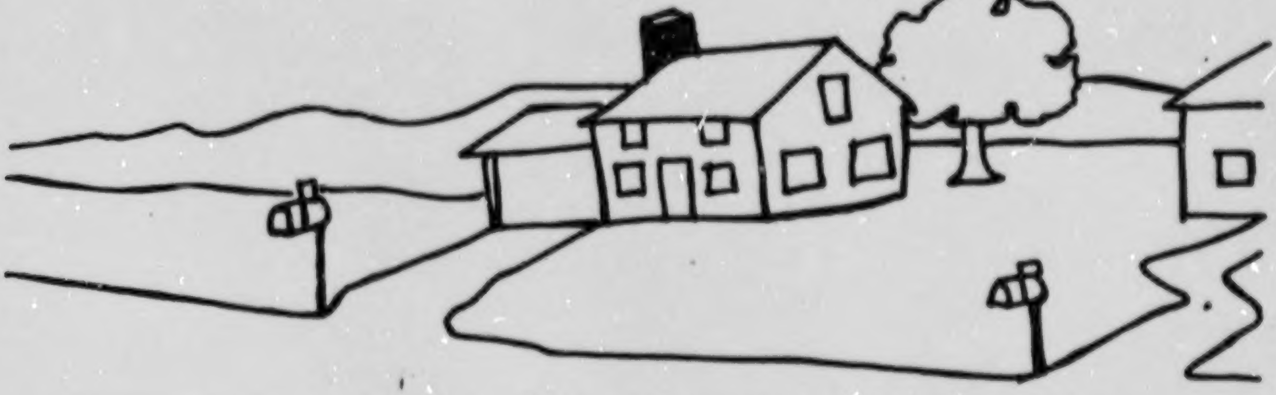
REAL ESTATE AGENT

Maryanne: **Good morning, Ms. Potter. Thanks for seeing me today.**

Ms. Potter: You're welcome, Maryanne. I enjoy interviews, especially with students. What would you like to know today?

Maryanne: I'm just starting to find out about the real estate business. Could you tell me what you do every day?

Ms. Potter: I spend a lot of time driving around in my car by myself just looking at houses and property. This way I get a pretty good idea of what neighborhoods are like. I have to stay on friendly terms with people in the community. It's important that they know about what I do. I also spend a lot of time especially during weekends and evenings driving around with people (sometimes whole families) who are interested in seeing houses they might like to buy.



Maryanne: How often do you sell property? Is it every day?

Ms. Potter: No. Sometimes I don't sell anything for weeks or months. Winter is a slow season. I can usually count on a lot of sales in spring. In winter I do most of my looking around--in spring I'm really prepared to show people what's available and to their liking.

Maryanne: I didn't know a real estate agent did that much. You really keep busy.

Ms. Potter: I sure do, but I only have to work at my own pace. If I wanted to, I could work part time or maybe just on weekends. My hours have to be flexible because my clients can't always be free from 9-5.

Maryanne: I bet that the more you work, the more money you make.

Ms. Potter: That's not true in my business. You see, I work on commission. That means I get a certain percentage of the selling price on all the sales I make. For example, let's say I get 10% as my commission. If I sell one house for fifty thousand dollars, I make five thousand dollars on the sale. If I sell two pieces of property for ten thousand dollars each, I'll make only two thousand dollars. Even if it takes me five minutes to sell the fifty thousand dollar house, I still make five thousand dollars. And if it takes me two months to sell the two ten thousand dollar properties, I'll still make only two thousand dollars.

$$50{,}000 \div 10 = 10\overline{)50{,}000}^{\,5{,}000} \qquad \begin{array}{r} 10{,}000 \\ +10{,}000 \\ \hline 20{,}000 \end{array} \qquad 10\overline{)20{,}000}^{\,2{,}000}$$

January 4, 1981 total 5,000

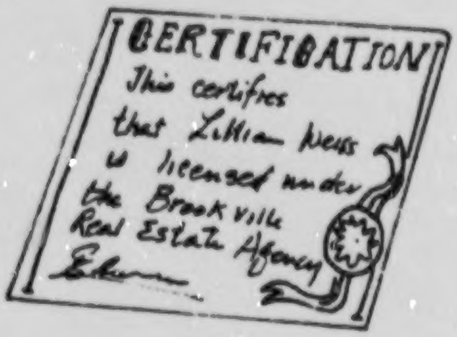
March+April 1981 total 2,000

Maryanne: There's houses and land everywhere you look. I bet you could do this job any place in the whole country.

Ms. Potter: That's not true. I can work only where houses and property are being bought and sold. And some areas have so many real estate agents that none of them are making much money. Plus, the more familiar agents are with the areas they work in, the better their chances are of doing well.

Maryanne: Could you tell me how you became a real estate agent?

Ms. Potter: I had to take a 60-hour training course at the local community college because I needed to get my special license. This license says that I can work as a real estate agent affiliated with a specific agency.



Marvanne: Why is it so important to have a license?

Ms. Potter: There are so many real estate laws and local zoning laws that real estate agents have to know about. So, each state gives a licensing exam. The people who pass can work for an agency.

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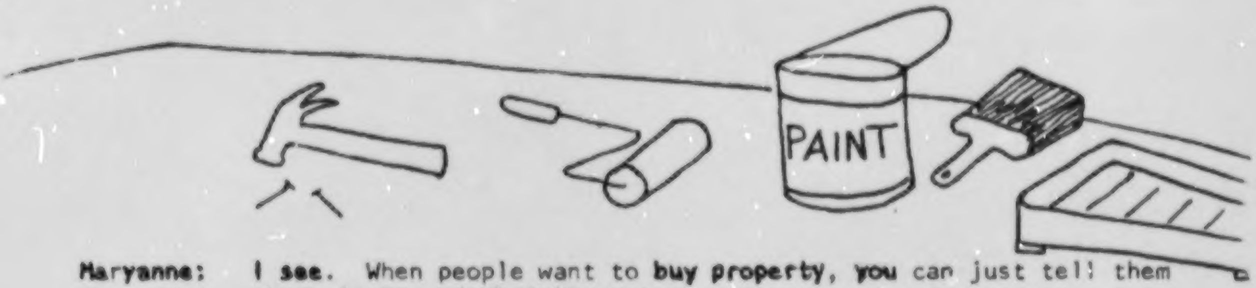
Maryanne: How do you go about selling a piece of property?

Ms. Potter: Well, here's what I do. When people call me to help them sell their homes, I look over the property and advise them about the market value of the property--that means how much money they can expect to get. If they want to get more money, I tell them about things they can do--like paint, put up a fence, or fix the roof--to make their property worth more money. Together, we decide on the amount of money to try to sell the property for. Then I advertise--put a picture of the house in the newspaper and in listing sheets.

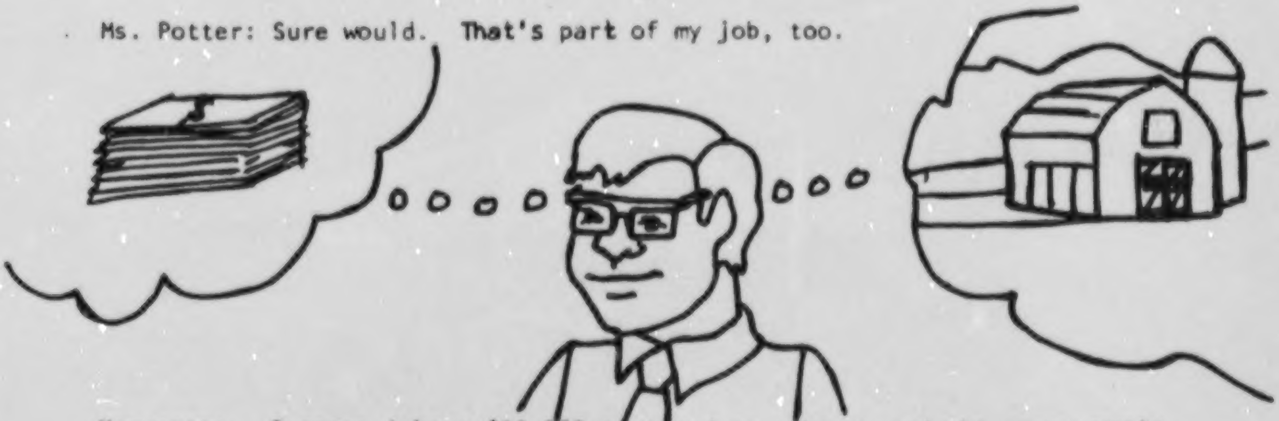


Maryanne: I see. When people want to buy property, you can just tell them where it is and what it costs.

Ms. Potter: Yes. When people come to me about buying property, I first have to know what kind of property they want and how much money they can afford to pay. Then I show them what's for sale.

Maryanne: Suppose I want to buy a house that's not for sale. Would you help me talk to the owners? Maybe we could convince them to sell it.

Ms. Potter: Sure would. That's part of my job, too.



Maryanne: Suppose I have $30,000 to spend on a house and the owner wants $40,000. What happens then?

Ms. Potter: I'd help you bargain with the owner. If you agree on a price, I help read and interpret legal documents like contracts, purchase agreements, loan applications.

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Maryanne: What tools do you use the most?

Ms. Potter: Well, a car is the most important tool for me. I also need legal documents like I mentioned just now--and I always make sure I have a pen handy. Besides those, I rely on the telephone a lot, "For Sale" and "Sold" signs, and the newspaper. Sometimes I even need a camera.

Maryanne: Why a camera?

Ms. Potter: Well, I take the pictures for the ads in the newspapers and listing sheets. A picture, you know, is worth a thousand words.

Maryanne: What else do you have to know, or have to be good at doing?

Ms. Potter: Keep my eyes and ears open. Know who might be moving, keep up with what's going on by reading the newspaper, attend town and county zoning meetings.

Maryanne: Well, if I was interested in becoming a real estate agent, what would be helpful for me to do, now, while I'm in high school?

Ms. Potter: I'd say, learn all the business skills you can: typing, bookkeeping, and the use of office machinery. Of course, in college, you should take courses in law, contracts, and insurance. Actually, there are even correspondence courses available by mail that can teach a lot of what you need to know. But if you don't enjoy

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people, and you don't have the physical energy to get out and look around and become a part of your community, chances for success are low.

Maryanne: Thanks, that certainly gives me a good idea of what's important at this job.

Ms. Potter: I'm glad I could be helpful. Good bye, now.

Maryanne: Good bye, and thanks again.

Quiz Yourself

.REAL ESTATE AGENT... REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGE

Below are some questions about the skills and tasks, tools and equipment, training sites, and the work place of a REAL ESTATE AGENT.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the interview and go back over these quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by a REAL ESTATE AGENT.	What is one use for each tool or piece of equipment you have listed?
1. ____________________	1. ____________________
2. ____________________	2. ____________________
3. ____________________	3. ____________________

Name one training site for a REAL ESTATE AGENT.

1. ____________________

Name 3 skills and/or tasks of a REAL ESTATE AGENT on the job.

1. ____________________
2. ____________________
3. ____________________

Name one place where you might find a REAL ESTATE AGENT at work.

1. ____________________

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ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT...REAL ESTATE AGENT..................

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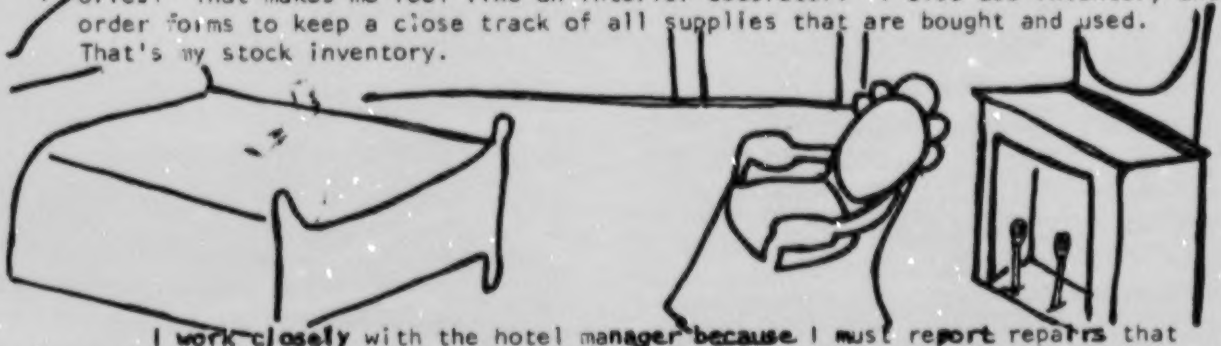
EXECUTIVE HOUSEKEEPER

My name is Corinna and I work at the Four Star Hotel. I am an executive housekeeper. As supervisor of the housekeeping department at the hotel, it's my job to make sure that others carry out their housekeeping tasks. I hire, train, and schedule the folks that do cleaning, laundry, and maintenance tasks at the Star.

I keep records of when these hotel employees come and go and of all that they do each day. Besides all this, I inspect rooms to make sure that they are in order and well maintained. Actually, I sometimes even design rooms so that they are most attractive and efficient. Then, I decide on furniture and accessories. That makes me feel like an interior decorator. I also use inventory and order forms to keep a close track of all supplies that are bought and used. That's my stock inventory.



I work closely with the hotel manager because I must report repairs that are needed. I also order supplies, and even furnishings for the hotel. Since the housekeeping department has its own budget, and I'm in charge of keeping financial records, I must consult with the manager about spending large amounts of housekeeping's money allowance.

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What does it take to do my job? Well, since I tell people what to do and how to do it, I've got to know the hotel inside and out, and I've got to be pleasant to work for. That way, the people I supervise feel good about working hard. I don't get pushy when I tell people what must be done, but I'm always firm. I also use my ability to find out about people when I interview folks for jobs. I get them to talk about what they're like, what's important to them, and how they like to work. Besides that, why, I need a good head on my shoulders for things like math because, when I order materials I've got to get the best buys for the Star, and a lot of money is entrusted to me in the budget. Finally, I've got to be conscientious because I work independently and never need anyone standing over me to make sure I do a good job. I always do my best.

The tools I use for my work are a floorplan of the hotel, each worker's time card and job schedule, the general hotel task list, and a handy clipboard so that I can take notes all day about what I see and hear. I use a telephone to talk with people in different parts of the hotel, to arrange interviews, to take calls from employees who call in sick, and to speak with equipment and goods suppliers to check out prices. Of course, with all the scheduling I do, I need a few good calendars, and on days when we're short a few housekeepers, or when I train a new housekeeper, I work like everyone else in my department, with industrial vacuums, cleansers, mops, and other cleaning stuff.

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I was a housekeeper for many years before I decided I wanted to use more of my skills and get paid for using them. I sent away for a mail order course to learn to be an executive housekeeper and it took just a few months to earn my "degree." I'm proud to say that as I'm a member of the National Executive Housekeepers Association, I'm especially qualified. I took an 80-hour extra course offered by the Association, and I passed with flying colors. I learned a lot of things that help me be more efficient at work. Other people take courses at community colleges, and some others just work so hard as housekeepers that they are promoted to the executive level.

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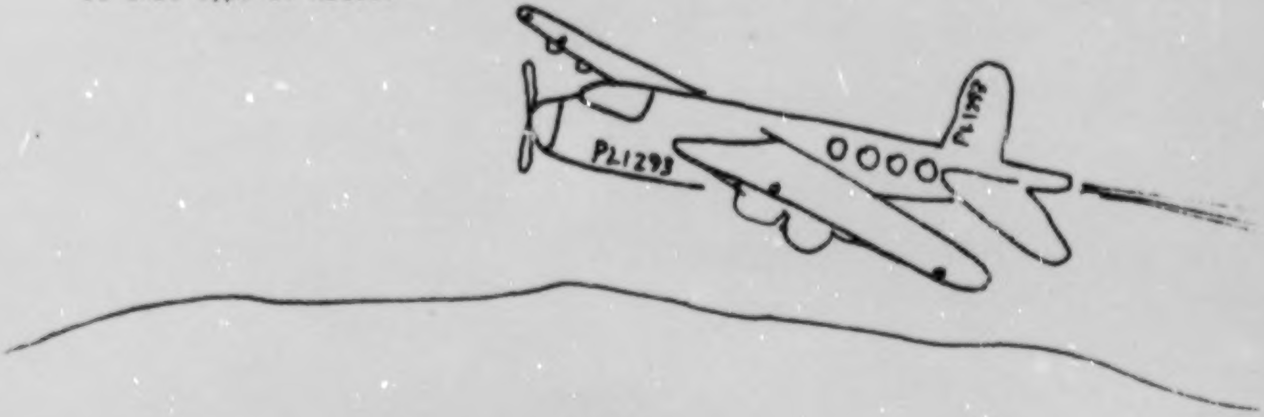
This Certifies That
Corianna Mays

Besides that, because different hotels need to be run differently, some hotels even fly their new executive housekeepers to special training conferences. That way, they learn the standard way of running the housekeeping department at that type of hotel.



Executive Housekeeper is an important job, and if it's not done right, the whole hotel suffers, including guests. I enjoy what I do, and I see the results of my good work when clients come back to the Four Star Hotel, and when they compliment the hotel manager about the clean, orderly way we keep things here. And I'll tell you something else. Even if every hotel in the world closed tomorrow, I could probably get a job as an Executive Housekeeper at a hospital, college, department store, office building, or industrial plant. Without us Executive Housekeepers, the world would be a messier place to live in. Yessiree!

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Quiz Yourself: Executive Housekeeper

Answer the questions below by filling in the blanks. Reread the story for any answers you did not know; then go back to fill in those blanks.

Name 3 of my tools or pieces of equipment, and 1 use for each.

________________ ________________

________________ ________________

________________ ________________

Name 1 of my training sites.

____

What are 3 of my on-the-job tasks or skills?

____

____

____

Name 1 of my work places.

____

REFRIGERATION AND AIR CONDITIONING MECHANIC

SKILLS AND TASKS

Follows blueprints and design specifications to install and repair motors, evaporators, and other components for refrigerators, freezers, and air conditioners.

Connects duct work, refrigerant line, and other piping to electrical power source (may weld or solder).

Charges equipment with refrigerant.

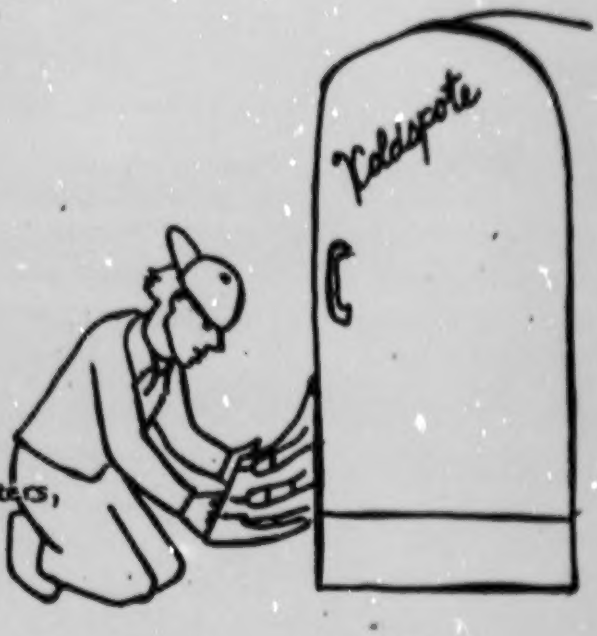
Adjusts balance of air distribution and air pressure.

Installs electrical circuits.

Insulates components.

Inspects, cleans, lubricates, changes filters, and checks component for leaks as part of maintenance duty.

Manual dexterity and orderly thinking are important.



TOOLS AND EQUIPMENT

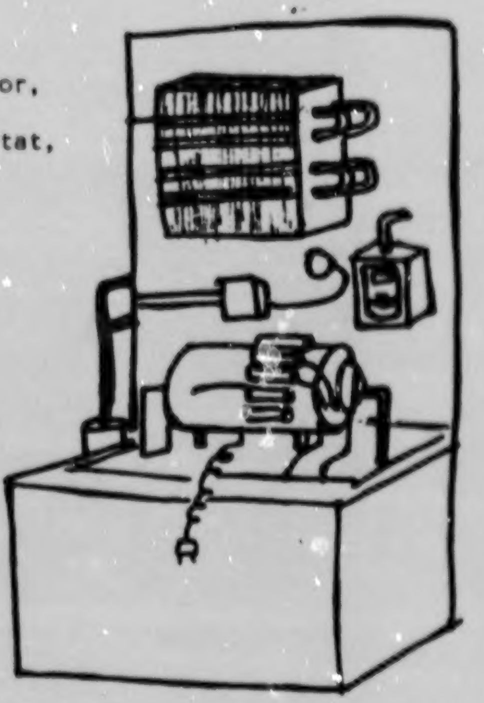
Cooling units which consist of a compressor, condenser, metering device, evaporator, connecting tubes, starting relay, thermostat, fan motor, filter, exhaust fan allow refrigerators or air conditioners to lower the temperature.

Thermometer--measures temperature.

Refrigerant leak detector--finds leaks.

Ammeter or voltmeter--locates equipment breakdown by measuring electric current.

Small hand tools such as screwdrivers, wrenches, etc.



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REFRIGERATION AND AIR CONDITIONING MECHANIC

TRAINING

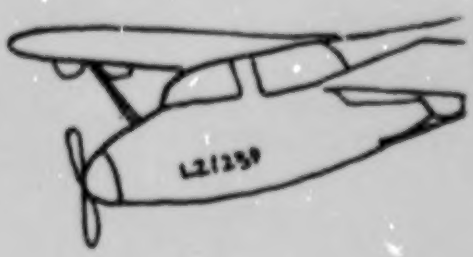
Vocational school courses in drafting, refrigeration and air conditioning repair, or heating.

Courses in heating and refrigeration theory and practice at colleges or vocational schools.

On-the-job training.

Periodic service clinics or factory schools are part of ongoing training while employed.

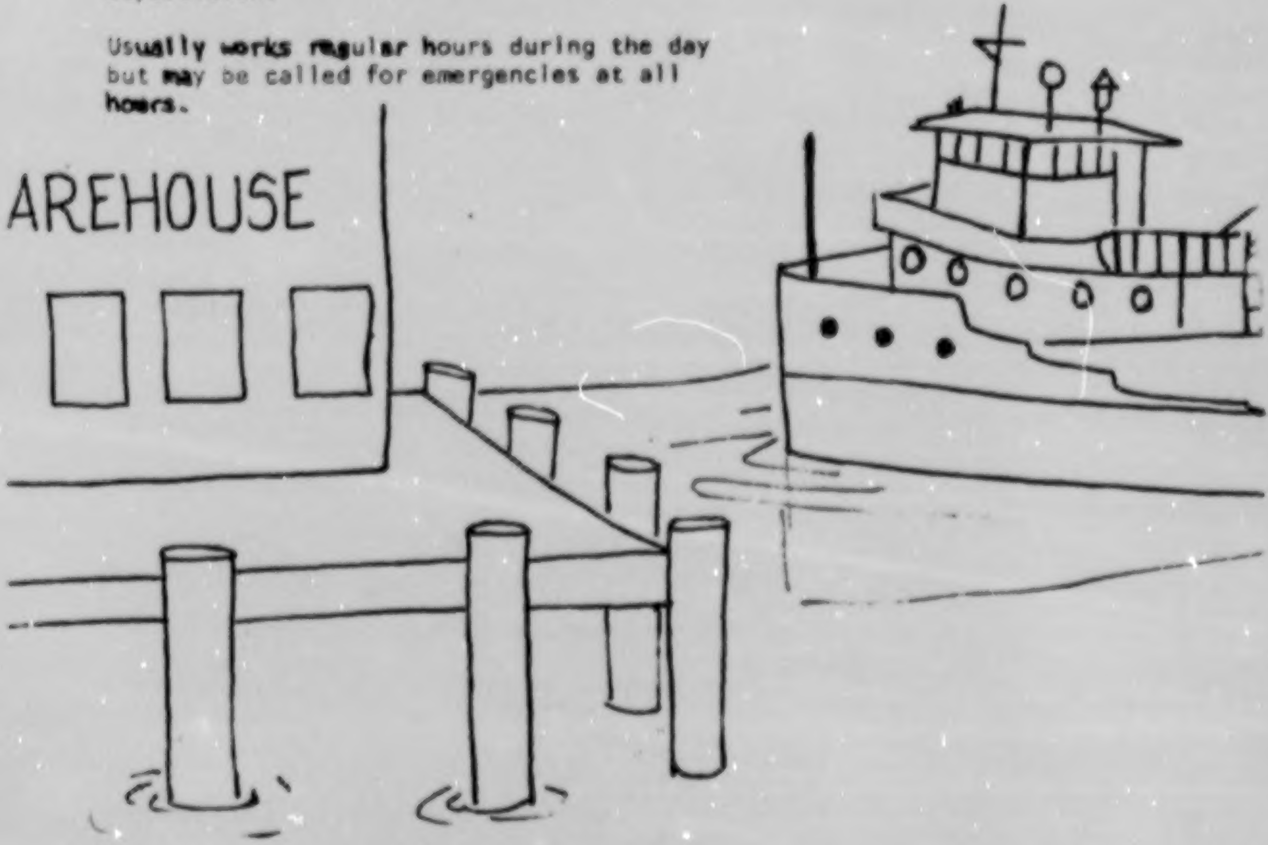
WORK PLACES AND CONDITIONS



Indoors at manufacturing plants, refrigerated trucks, planes, ships, railway cars, warehouses and terminals, stores, homes.

No office confinement, and often no direct supervision.

Usually works regular hours during the day but may be called for emergencies at all hours.



Quiz Yourself:

Refrigeration and Air Conditioning Mechanic

Koldspote

Read the questions and fill in the blanks. If there were any questions you could not answer, reread the poem. Then go back and fill in the blanks.

Name 3 on-the-job skills and/or tasks.

1. ____________________
2. ____________________
3. ____________________

Name 3 tools or pieces of equipment and a use for each

1. __________ __________
2. __________ __________
3. __________ __________

Name 1 work place

____

Name 1 training site

____

HOTEL COOK

I prepare and cook food for folk in large quantities.
After ten years of experience, I do it with ease.
Though I've always worked in kitchens, they've never looked the same:
Restaurants, cafeterias, or food serving chains,
For hospitals, or any institution you can name.
I've even fixed high-flying food for people in airplanes.
A galley cook works in a ship, far out at sea,
Wherever people gather, they must eat, and so, need me.

Well, there are plenty of ways to learn to cook up a storm,
Experience was my way, though it takes a little long.
In high school, I worked making heros and spreads.
Next year as cook's assistant, I earned a little more bread.
Then at a hamburger joint, I kept my grill clean,
But spent a lot of time the first few months, sifting French fries
    through a screen.
I learned to make quick dinners, good chow with no frills,
That led me to a better job, a resort in the hills.
That's where I learned to do some fancy baking.
And you know, cooking for one hundred, there's no way of faking.

HOTEL COOK

You've got to be quick and you've got to be good.
You must measure real well, and have a knack with food.
I follow directions and keep my workspace clean,
Board of Health Inspectors can get picky, it seems.
I multiply my recipes for banquets or a party,
I need my math when mouths are many and appetites are hearty.

Some tools of my trade may be familiar to you.
I use forks, spatulas, ladles, pastry blenders, and spoons.
I use special French knives with big blades for dicing,
Micro-wave ovens, and machines that do slicing,
Strainers, wire whisks, mixers for batters,
I measure with spoons and cups and scales, and arrange food on platters.
Believe it or not, it's especially new,
The way mashed potatos are coming to you.
You push a button, they plop from a slot,
Made of powder and water, homemade they're not.

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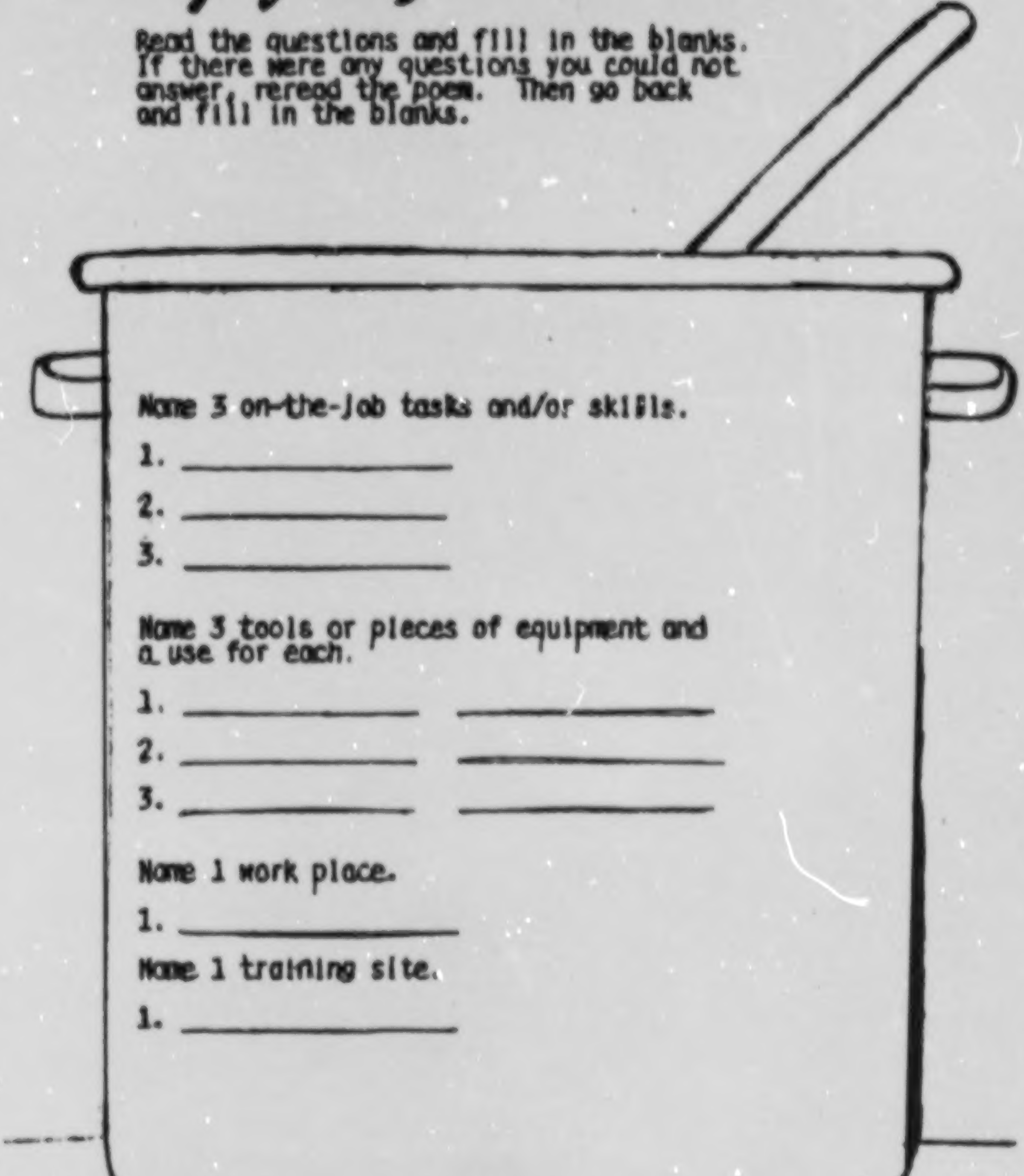
HOTEL COOK

I prepare soups and gravies before each night begins.
I contact food wholesalers to get the biggest bargains.
My work is often under pressure, I can really feel the heat.
And waiters can get snappy from long hours on their feet.

If I were chef, I'd plan menus, and specialize in baking,
And supervise the other cooks and taste what they were making.
Although experience is one way to learn, as I've already said,
There are quicker ways to help ambitious cooks to get ahead.
Some two-year college courses can help you learn the trade,
But a culinary college is where a chef is made.

Quiz Yourself: Hotel Cook

Read the questions and fill in the blanks. If there were any questions you could not answer, reread the poem. Then go back and fill in the blanks.



Name 3 on-the-job tasks and/or skills.

1. ____________________
2. ____________________
3. ____________________

Name 3 tools or pieces of equipment and a use for each.

1. __________________ __________________
2. __________________ __________________
3. __________________ __________________

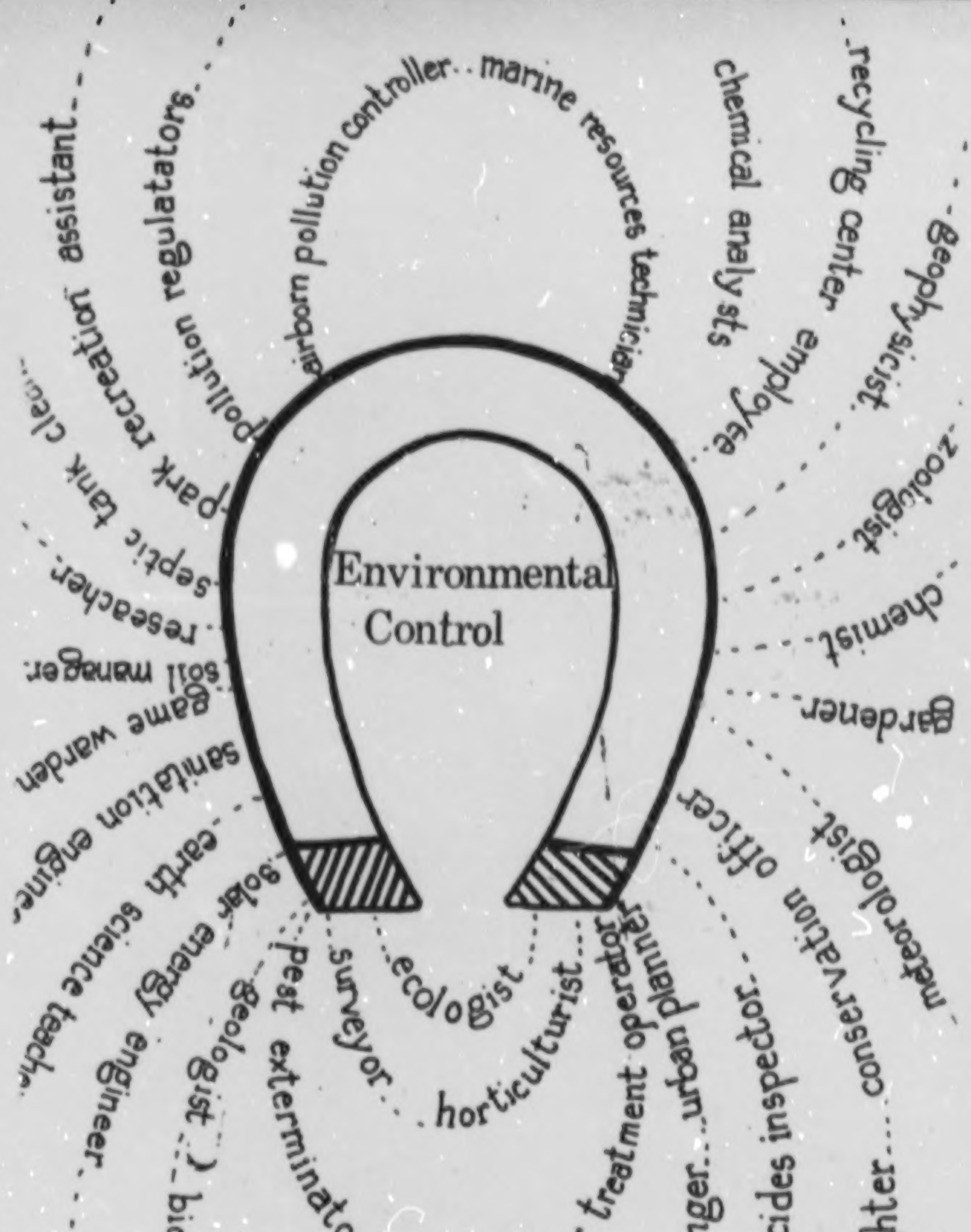
Name 1 work place.

1. ____________________

Name 1 training site.

1. ____________________

14-16Q


Environmental Control
park recreation assistant
pollution regulatators
airborn pollution controller
marine resources technician
chemical analy sts
recycling center employee
geophysicist
zoologist
chemist
gardener
meteorologist
conservation officer
fire fighter
pesticides inspector
forest ranger
urban planner
waste water treatment operator
horticulturist
ecologist
surveyor
pest exterminator
geologist
biologist
solar energy engineer
earth science teache
sanitation engine
game warden
soil manager
reseacher
septic tank clea

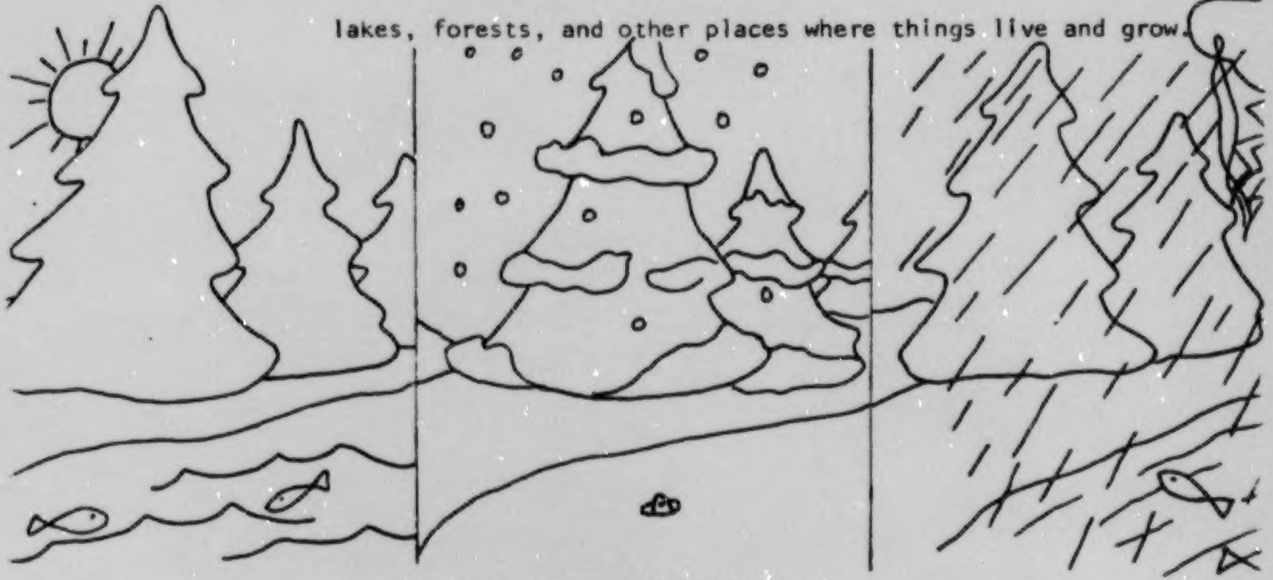
ECOLOGIST

Roving Reporter: Hello, Ms. Perez. I'm Roy Jones, reporter for Roving Times. You are the first ecologist I've had the chance to talk to.

Ms. Perez: Hello, Roy. Good to meet you.

Roving Reporter: From what I've read, I think of an ecologist as someone who fights pollution. Is that really what you do?

Ms. Perez: Well, that's part of what I do. I also study radiation, and anything else that threatens life. But, that's not all. Since my main job is to study the relationships among organisms (that's plant and animal life, including human beings), and between organisms and their environment, I've got to study the biosphere (that's living things) and the non-living things that make up environment--weather, minerals, streams, marshes, lakes, forests, and other places where things live and grow.

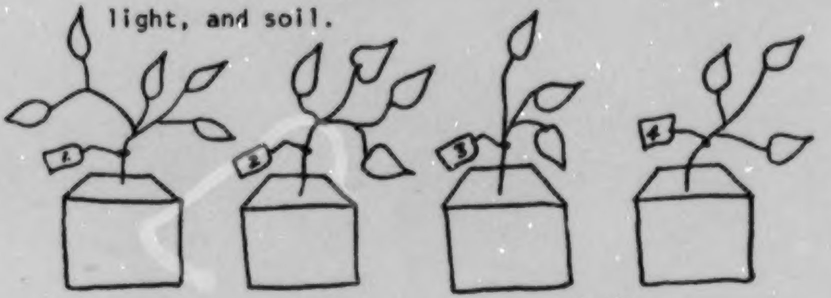


Roving Reporter: Who do you do all this work for?

Ms. Perez: Well, I'm working now for Convenient Telephone, to help them decide on the best places to put their underground cables.

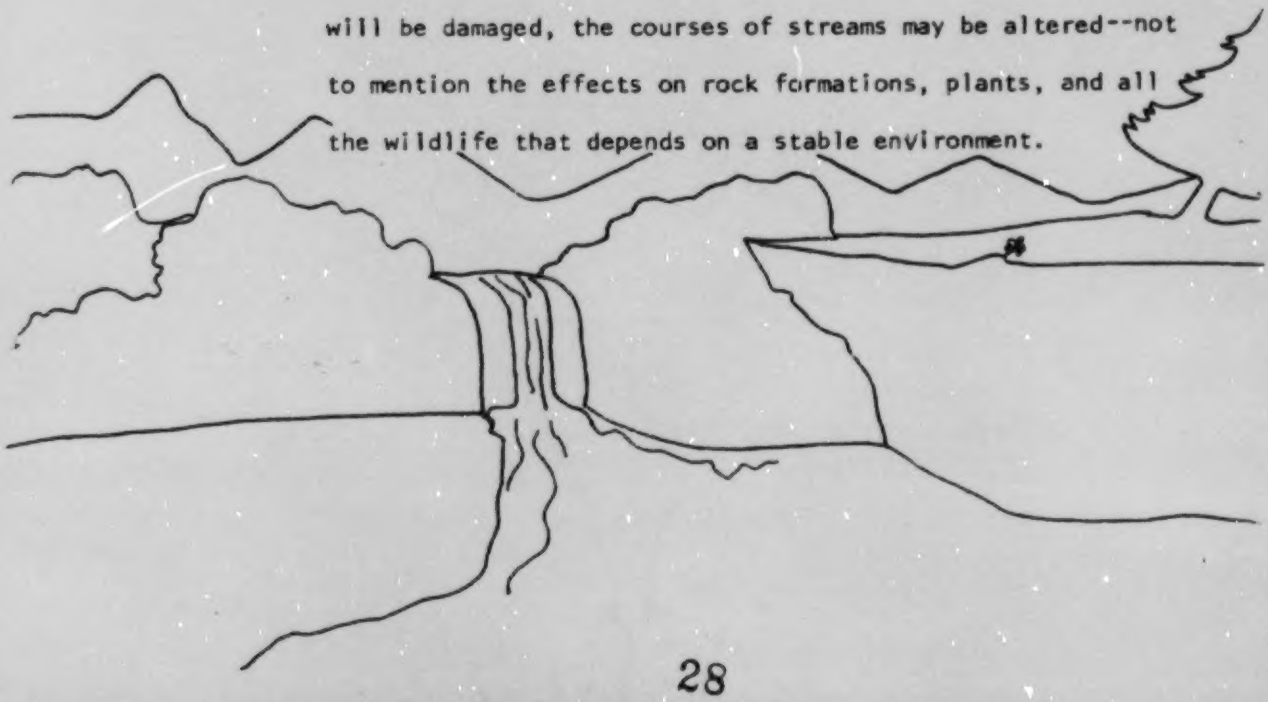
Roving Reporter: How do you go about helping them? What are your job tasks, the things you do when you take on a project?

Ms. Perez: First, I must hike around and get to know an area well. Then I take samples of plant and animal life to find out how their environments affect them. Often I compare different environments, observing and measuring the differences in them and figuring out the causes for the differences in amounts and types of water, light, and soil.



Roving Reporter: What will you do with all that information?

Ms. Perez: I'll write a special report called an "Environmental Impact Study." It will take months to prepare and will describe the effects of the cables on the environment and biosphere. The study will also give Convenient Telephone advice about the most ecological way to go about laying their underground cables. Of course, animals will lose their homes, tree roots will be damaged, the courses of streams may be altered--not to mention the effects on rock formations, plants, and all the wildlife that depends on a stable environment.



Roving Reporter: It's amazing how just digging a trench can affect the whole environment and living things there.

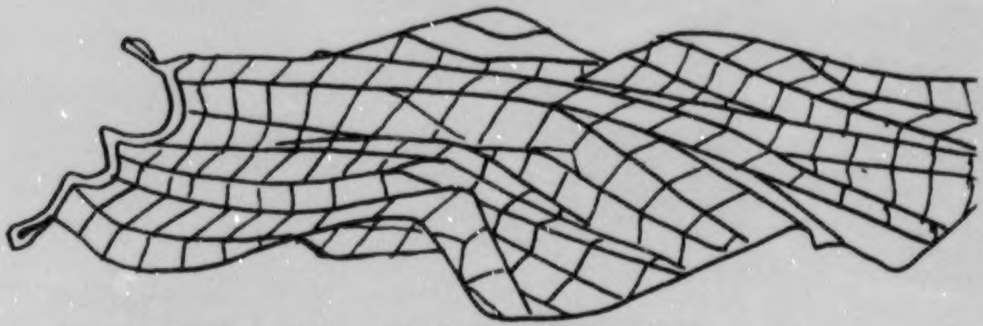
Ms. Perez: Yes, it is amazing. Roy, I'd like you to meet my friend and colleague, Mr. Rossi, who is working on an Environmental Impact Study to determine the effects of a nuclear power plant's cooling system on the fish in the nearby bay.

Roving Reporter: Hi, Mr. Rossi, Are those your tools on the shelf?

Mr. Rossi: Yes, they are.

Roving Reporter: What are those nets and bags for?

Mr. Rossi: Well, right now, Roy, my work is to collect samples of plant life in the bay with these collecting bags. This is a plankton sample net, and this sweep net here is what I use for collecting insects. Since insects, plankton, and other plant life in the bay are food for the fish, I have to study them too. This sein net is what I pull behind a boat to crowd the fish together.

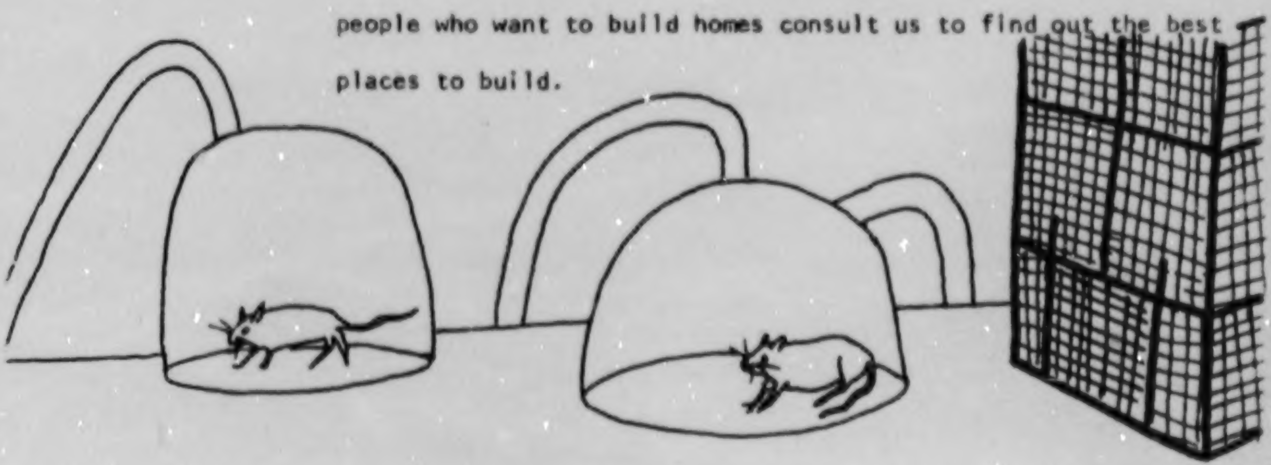


Roving Reporter: What do you use these other tools for?

Mr. Rossi: Well, I use this nansen bottle to collect water at different depths. I get samples of the bay bottom with this dredge scoop. And look at this disc. When I lower it into the water until I can't see it any more, it helps me measure the muddiness, or turbidity, of the water.

Roving Reporter: So you two both work for utility companies, huh?

Ms. Perez: Yes, but there are plenty of different kinds of work places for a qualified ecologist. Nurseries, history museums, zoos, and aquariums are a few. Some ecologists work for toxicology labs. They measure the effects of toxins or poisons on living things. Other ecologists work in colleges as teachers. Sometimes people who want to build homes consult us to find out the best places to build.



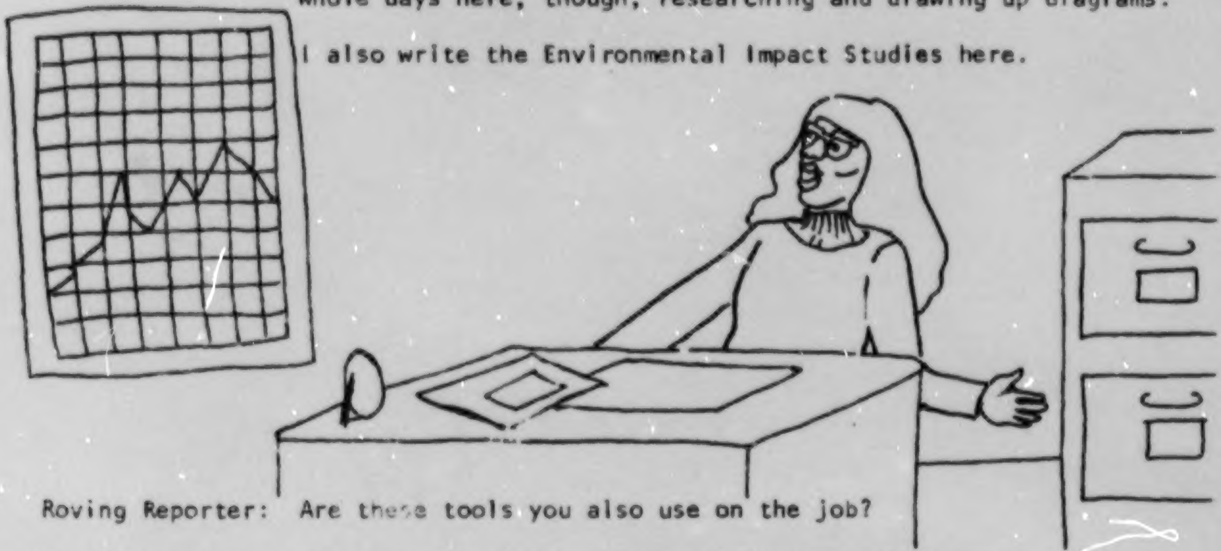
Roving Reporter: Your work sounds challenging. What kind of training does it tak to become an ecologist?

Ms. Perez: Well, training in biology and chemistry is helpful, so success in high school science in important. High school science courses can teach you how to use laboratory equipment, and to do experiments using the scientific method. That's just an orderly way to arrange observations and hypotheses. Being a full-fledged ecologist usually requires about six years of college, the time it takes to earn a Master's degree.

Roving Reporter: How much time do you spend here in this office?

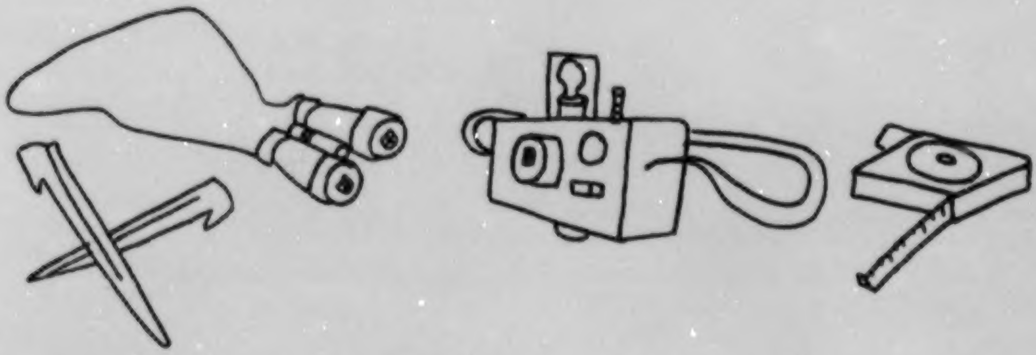
Ms. Perez: Well, frankly, I prefer to spend as much time in the field or in the lab as possible, but this is where I check up on reference book information, like environmental and zoning laws.

I also keep a **lot** of maps and charts here, and my library of plant and animal species key books. (These soil and water testing chemicals should be in the Lab). Sometimes I spend whole days here, though, researching and drawing up diagrams. I also write the Environmental Impact Studies here.



Roving Reporter: Are these tools you also use on the job?

Ms. Perez: Yes. In the field we carry binoculars and a camera, tape measures, calipers, a light meter, and metal stakes that mark off the plot we are studying. This rain gauge is too large to carry around, but it is useful when we measure the amount of rainfall in an area. This increment corer bores into a tree and tells us the tree's age.

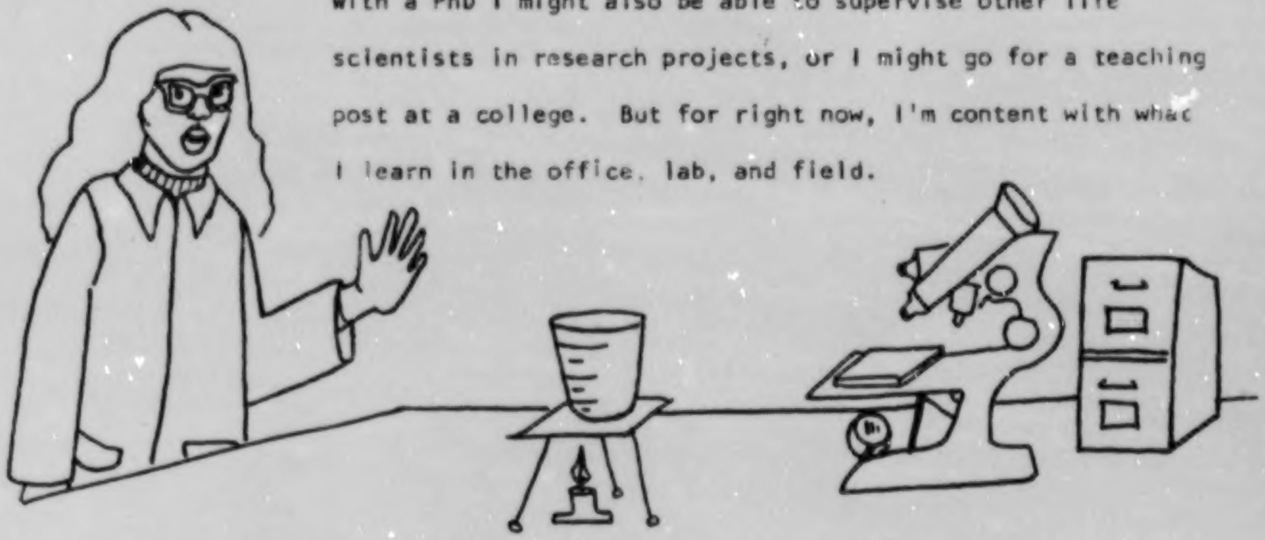


Roving Reporter: An ecologist has to know an awful lot. You've got to be a scientist and a writer at the same time. You went to college for six years and you know how to use all kinds of equipment. About how much money do you make?

Ms. Perez: Oh, an ecologist makes about 13 to 16 thousand dollars a year.

Roving Reporter: That sounds like a lot. Is there a chance that you can advance in your field?

Ms. Perez: Well, if I studied more and earned a PhD, I'd earn more money. With a PhD I might also be able to supervise other life scientists in research projects, or I might go for a teaching post at a college. But for right now, I'm content with what I learn in the office, lab, and field.



Roving Reporter: What are your working hours now?

Ms. Perez: Most days, 9 to 5. But if I'm involved in a lab project, I stay as late as it takes to complete my work, maybe 7 or 8 PM. Actually, I've even stayed overnight in the field a few times when working on a special field investigation.

Roving Reporter: It certainly sounds as though you enjoy your work.

Ms. Perez: Yes, though it's taken me years of study, I love studying nature and I try to keep humans aware of nature's balance.

Roving Reporter: Thank you very much for this interview. I've learned a lot.

Ms. Perez: Any time. Thank you.

Quiz Yourself

ECOLOGIST...ECOLOGIST...ECOLOGIST...ECOLOGIST...ECOLOGIST...ECOLOGIST

Below are some questions about the skills and tasks, tools and equipment, training sites, and the work place of an ECOLOGIST.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the interview and go back over these quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by an ECOLOGIST.	What is 1 use for each tool or piece of equipment you have listed?
1. ____________________	1. ____________________
2. ____________________	2. ____________________
3. ____________________	3. ____________________

Name 1 training site for an ECOLOGIST.

1. ____________________

Name 3 skills and/or tasks of an ECOLOGIST on the job.

1. ____________________
2. ____________________
3. ____________________

Name 1 place where you might find an ECOLOGIST at work.

1. ____________________

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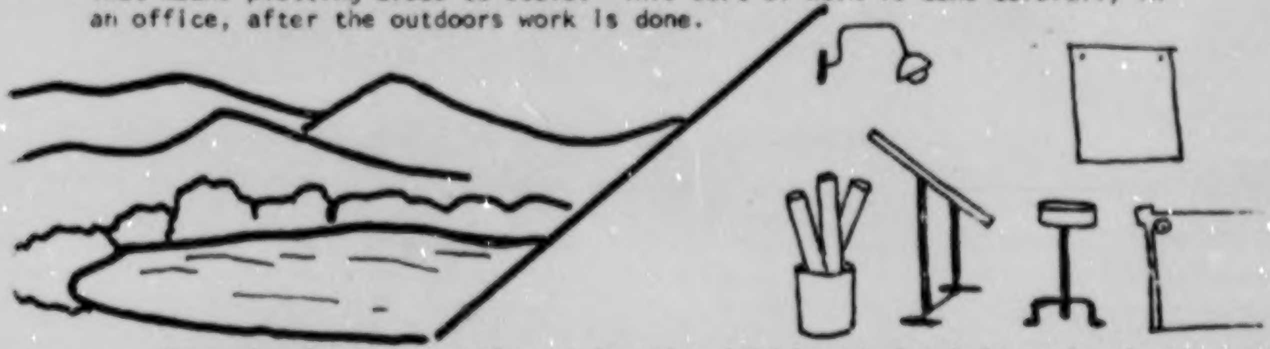
SURVEYOR

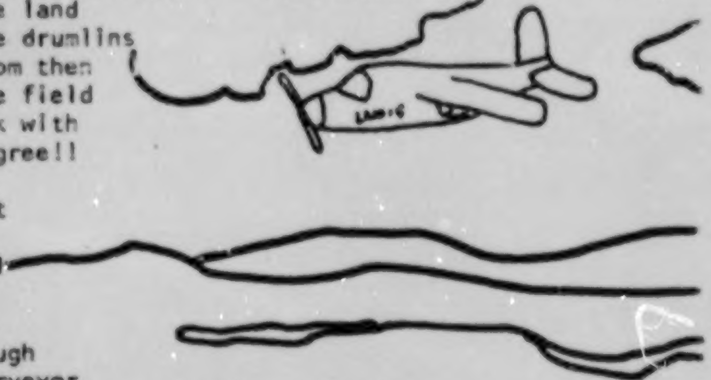
THE LAY OF THE LAND

My name is Raúl and I'm a surveyor for the Midlow Land Survey Company. My job is to measure and record land areas, elevations, and contours accurately. Besides having physical endurance, a good surveyor must take the trouble to be precise, not only in measuring, but in drawing maps of the measured areas. That means plotting areas to scale. This sort of work is done carefully in an office, after the outdoors work is done.

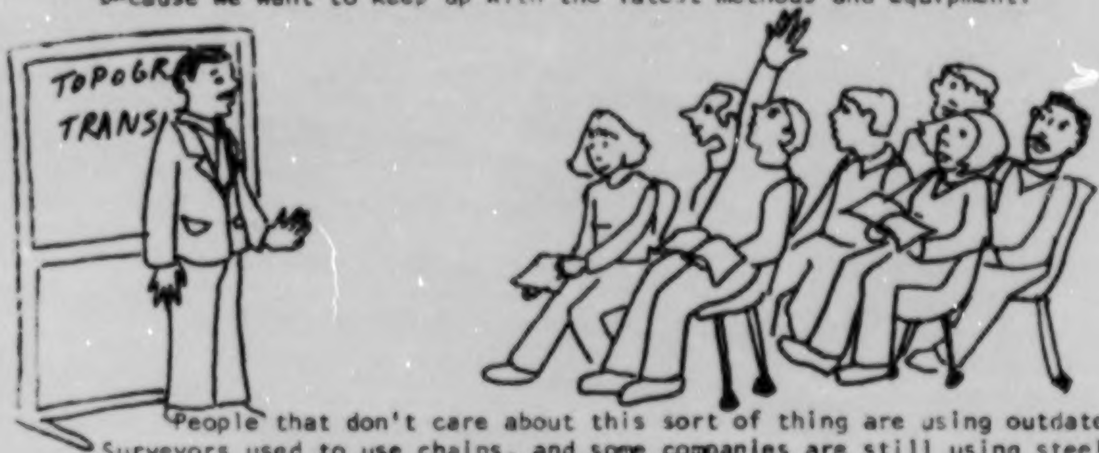


Measuring land accurately and locating land boundaries helps solve legal problems and disagreements. Part of my office job is to prepare legal descriptions of the land we measure for leases or will disputes. Of course, a survey team is an important and basic part of any construction plan so we're often contracted to measure possible construction sites in detail. Besides this, we often do the preparatory work for mapmakers or cartographers.

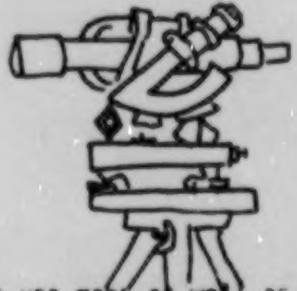
You know, when I was in high school, I just wanted a summer job out of doors. I started out clearing brush from the survey or measuring line, and also pounded the temporary markers, called range poles, into the ground. I loved being outdoors, but I also realized that I enjoyed working with a crew, and that there was a lot more to survey work than just being outside, pounding in stakes and measuring straight lines and angles. During that first summer, the crew leader, Alfonso, needed to take some aerial photographs of a large plot in order to locate different land features. From hundreds of feet in the air, Al explained to me about the land and about some land features like drumlins and gullies, and anticlines. From then on, I took a real interest in the field of surveying and decided to stick with it and get my degree. Yes, a degree!! I had taken a drafting course at vocational school so I knew about precise measuring and drawing to scale. My big problem was that I had to plug through algebra and geometry before getting into the college program I'd chosen. Though my partner, Teresa, is a good surveyor after a two year training course at community college, I'm glad I chose the four year program. I feel I'm better prepared to deal with more types of jobs, and though now I specialize in land surveys, I know that I could enter the fields of highway, mining, pipeline, and even hydro(water)graphic surveying without too much trouble.



It's important to say that even though Teresa and I are qualified, and have been well educated for the job, we go to special yearly conferences because we want to keep up with the latest methods and equipment.



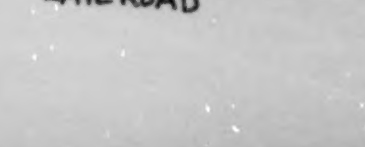
People that don't care about this sort of thing are using outdated tools. Surveyors used to use chains, and some companies are still using steel tapes that run along the ground. Now, though, we mostly use a special prism that sits on a tripod holder. Then a plumb bob is set up at the other end of the distance to be measured. The plumb bob has a pointed tip and points to a precise spot. Light passes through the prism, and the amount of time it takes (thousandths of a second) for the light to reach the spot below the plumb bob is measured or calibrated by a special computer. That's how we measure distance. Amazing, huh? We measure angles with an instrument called a theodolite (accent on the od), a kind of transit.



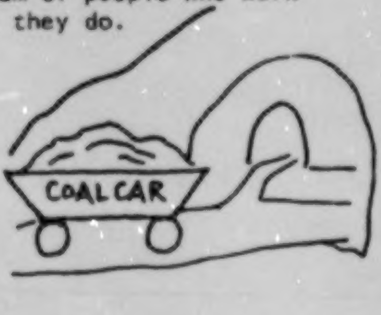
A TRANSIT
THEODOLITE

Of course we use maps as well as sketch pads and pencils, light tables, and drafting compases and rulers for the office.

Work as a surveyor is rewarding, and I'm glad I stuck with it. Surveyers are hired by government agencies, construction companies, architectural firms, railroad, mining, coal, and utility companies, and civil engineering offices. With my skills, I'll always have work: Work that's varied, interesting, and challenging. Best of all, I'll be working with a team of people who work together to do a job right, and who enjoy doing what they do.



ARCHITECT
MINERS



Quiz Yourself: Surveyor

Answer the questions below by filling in the blanks. Reread the story for any answers you did not know; then go back to fill in these blanks.

Name 3 of my tools or pieces of equipment, and one use for each.

____

____

____

Name 1 of my training sites

____

What are 3 of my on the job tasks or skills?

____

____

____

Name 1 of my work places.

____

HORTICULTURIST

SKILLS AND TASKS

Improves plant culture to make plants more attractive, more productive, or of better quality.

Helps improve food value or pest resistance of food plants such as fruit and nut trees, and vegetables for people or livestock.

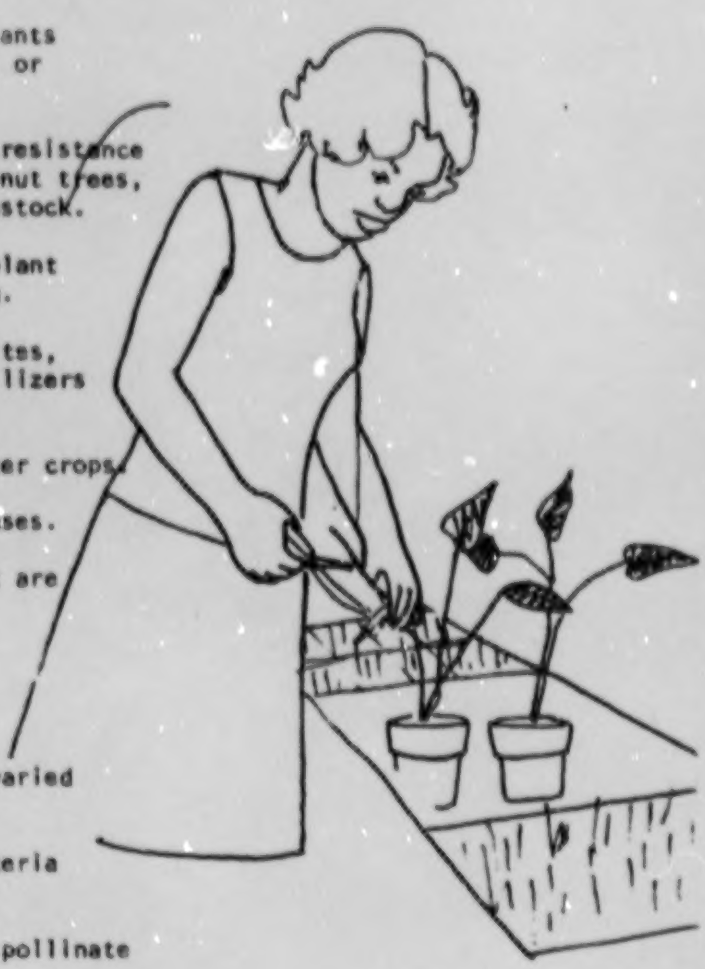
Researches and experiments with plant breeding, storing, and processing.

Studies plant diseases and parasites, and the effects of chemical fertilizers and pesticides.

Educates farmers how to grow better crops.

Supervises nurseries and greenhouses.

Love for plants and good eyesight are important.



TOOLS AND EQUIPMENT

Special soil mixtures--provides varied growing environment.

Soil sterilizer--removes all bacteria from soil.

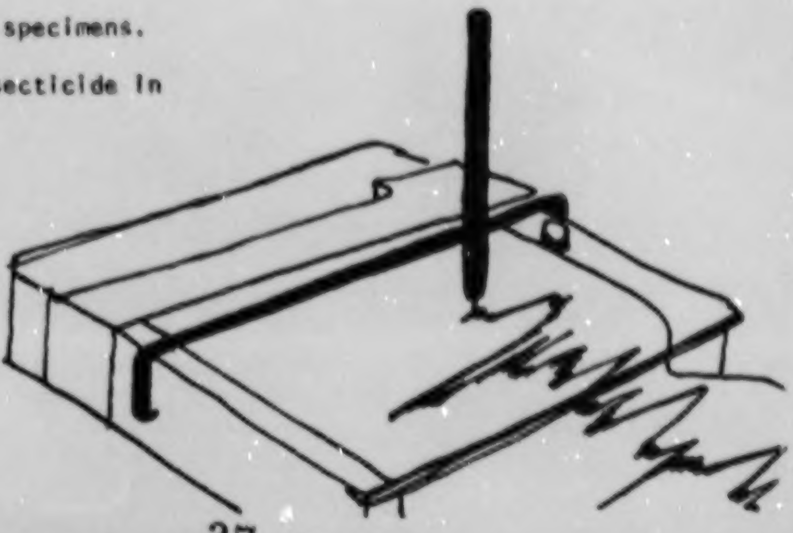
Brushes for pollen grains--cross pollinate plants.

Insecticides--kills insects.

Scales--measure weight.

Microscope--magnifies tiny specimens.

Chromatograph--measures insecticide in plants.



HORTICULTURIST

TRAINING

Two-year community college horticulture programs.

High school science courses and experience in greenhouses are helpful.

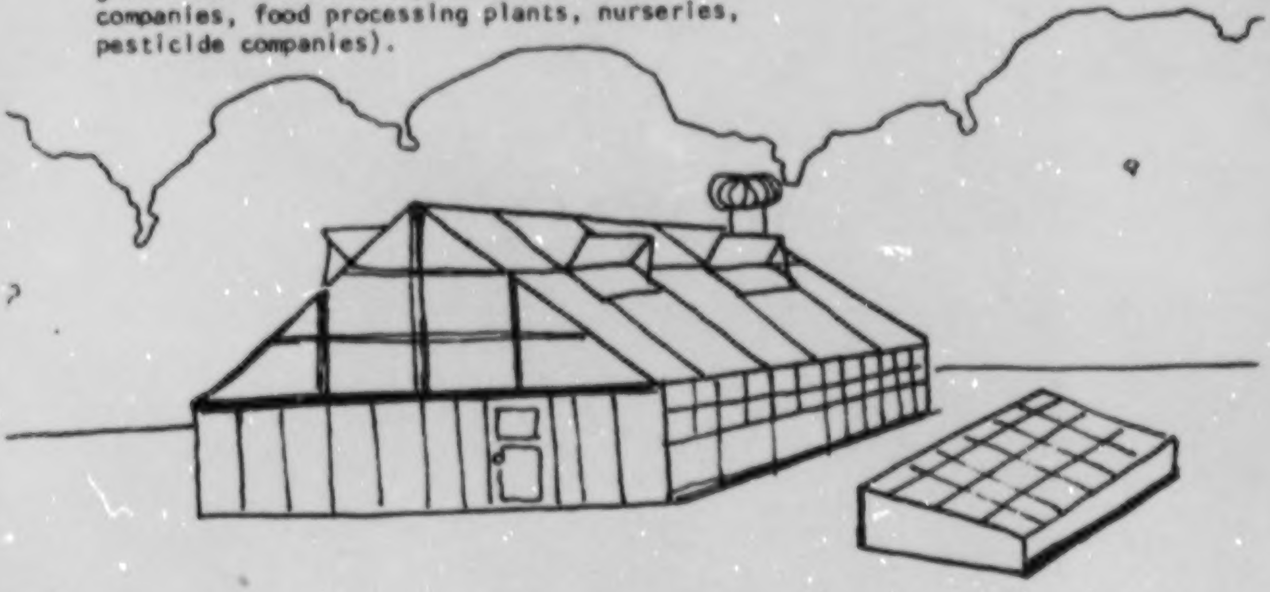
B. S. in biology or chemistry.

WORK PLACES

Greenhouses.

Farms and forests.

Indoor and outdoor laboratories for colleges, government and industry (including seed companies, food processing plants, nurseries, pesticide companies).



Quiz Yourself

.HORTICULTURIST...HORTICULTURIST...HORTICULTURIST...HORTICULTURIST.

Below are some question about the skills and tasks, tools and equipment, training sites, and the work place of a HORTICULTURIST.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the fact sheet and go back over these quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by a HORTICULTURIST.	What is 1 use for each tool or piece of equipment you have listed.
1. ____________________	1. ____________________
2. ____________________	2. ____________________
3. ____________________	3. ____________________

Name 1 training site for a HORTICULTURIST.

1. ____________________

Name 3 skills and/or tasks of a HORTICULTURIST on the job.

1. ____________________
2. ____________________
3. ____________________

Name 1 place where you might find a HORTICULTURIST at work.

1. ____________________

HORTICULTURIST...HORTICULTURIST...HORTICULTURIST...HORTICULTURIST...HORTICULTURIST

HORTICULTURIST...HORTICULTURIST...HORTICULTURIST.. HORTICULTURIST ..HORTICULTURIST

..HORTICULTURIST...HORTICULTURIST...HORTICULTURIST...HORTICULTURIST

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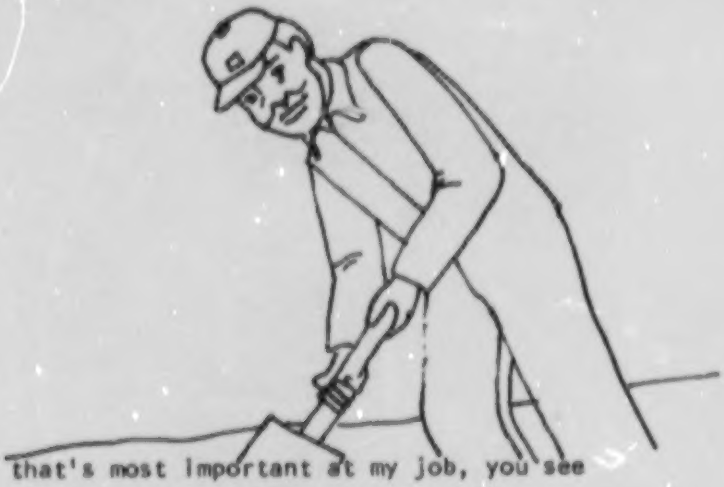
EXTERMINATOR or

PEST CONTROL ROUTEWORKER

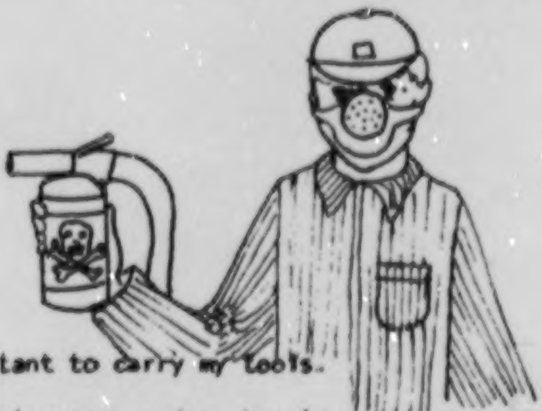
My job is to free all kinds of places from pests.
I send termites, rats, fleas, and roaches to their final rest.
I tell folks how to correct the conditions that attract
The guilty rodents or bugs. I make life awful for rats.
Sometimes it means eliminating wetness, rot or cold.
I point out to people that they should paint wood that is old.
I build ditches around buildings where the poisons can go.
This kills the pests or keeps them from their food supply, you know.



The skill that's most important at my job, you see
Is reading directions and following accurately.
These chemicals are very strong and if measured or mixed wrong,
They might kill much more than rats.
They could bore right through your hats
And your rubber welcome mats.
So each label is my instruction chart.
I read it twice before I start.

EXTERMINATOR or PEST CONTROL ROUTEWORKER

I wear a respirator, a type of safety mask
Before spraying or dusting powder or fogging with gas.
I must check to see if chemicals are safe where I spray...
Some types of pets, the foods you eat, must not be in the way.
There are two kinds of sprayers, a large, and a small portable.
A special pump builds pressure, and the nozzles make'm squirtable.
I use dusting bulbs for powder, poison bait, and sticky traps.
The fogger's called a Microjen. A choice of methods I never lack.

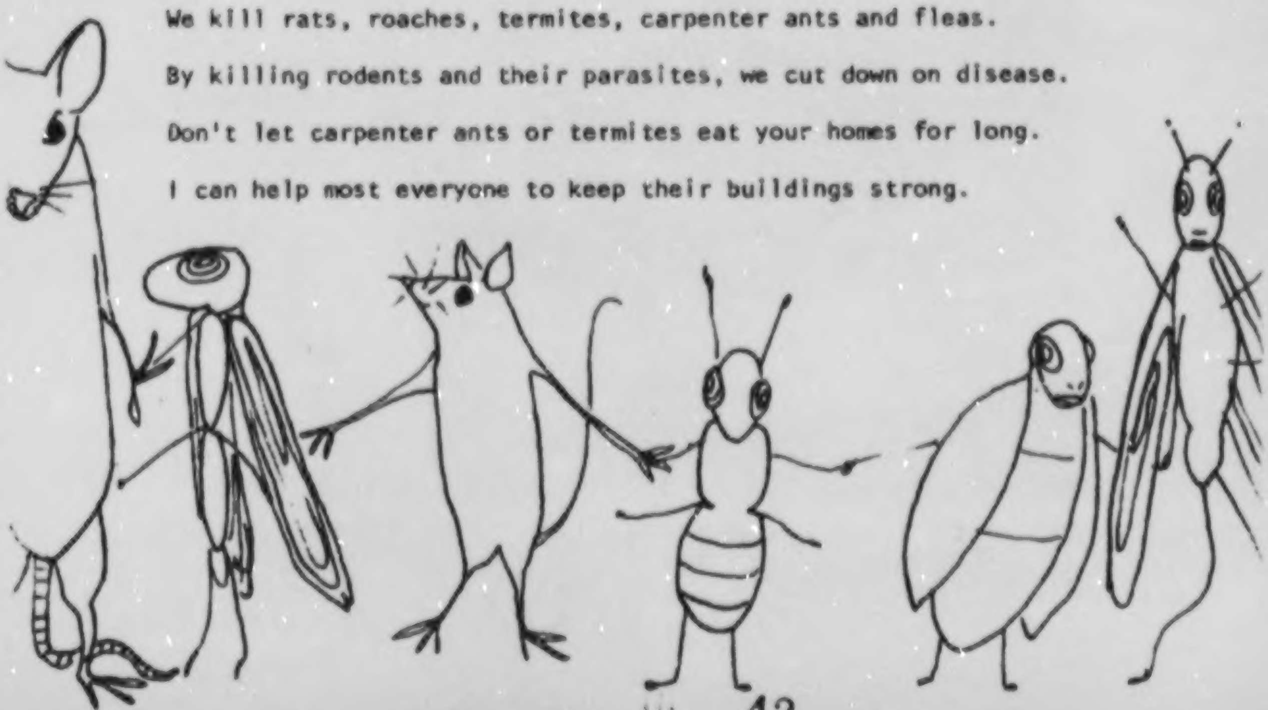


A vehicle's important to carry my tools.
Sometimes I make six stops a day, but in restaurants or schools,
I may need to do my work at night when nobody is there.
The idea of bugs in eating places, might give folks a scare.

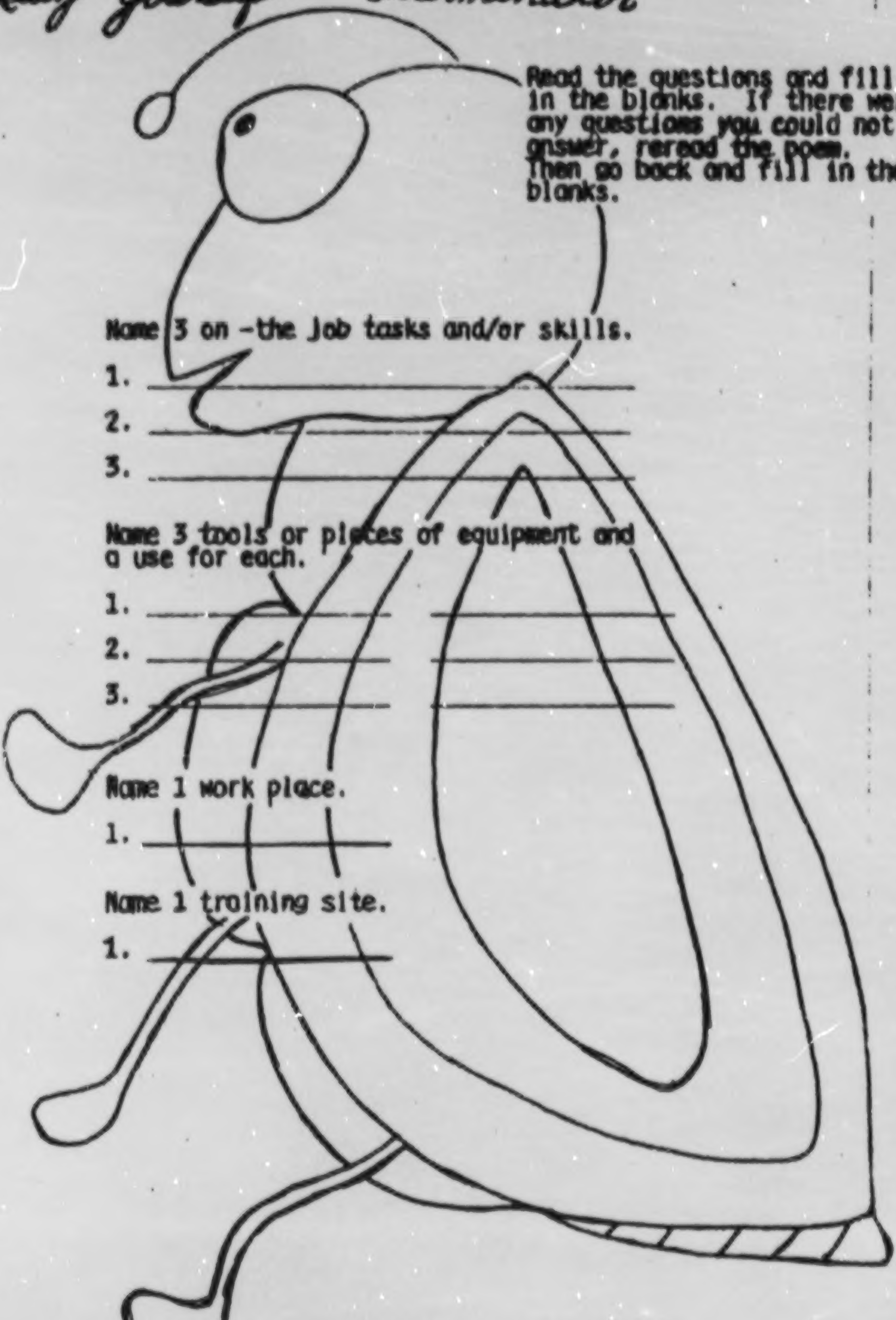
EXTERMINATOR or
PEST CONTROL ROUTEWORKER

You need a license for this type of work, must take a special test.
Reading and experience will help you do your best.
I find carpentry courses helpful, and general construction.
I recognize many types of wood, and mix concrete, need no instructions.
In high school, there's a chance to learn chemistry and math
For mixing things in good proportion, to give a bug its final bath.

We kill rats, roaches, termites, carpenter ants and fleas.
By killing rodents and their parasites, we cut down on disease.
Don't let carpenter ants or termites eat your homes for long.
I can help most everyone to keep their buildings strong.



Quiz Yourself: Exterminator



Read the questions and fill in the blanks. If there were any questions you could not answer, reread the poem. Then go back and fill in the blanks.

Name 3 on -the job tasks and/or skills.

1. ______________________
2. ______________________
3. ______________________

Name 3 tools or pieces of equipment and a use for each.

1. ______________ ______________
2. ______________ ______________
3. ______________ ______________

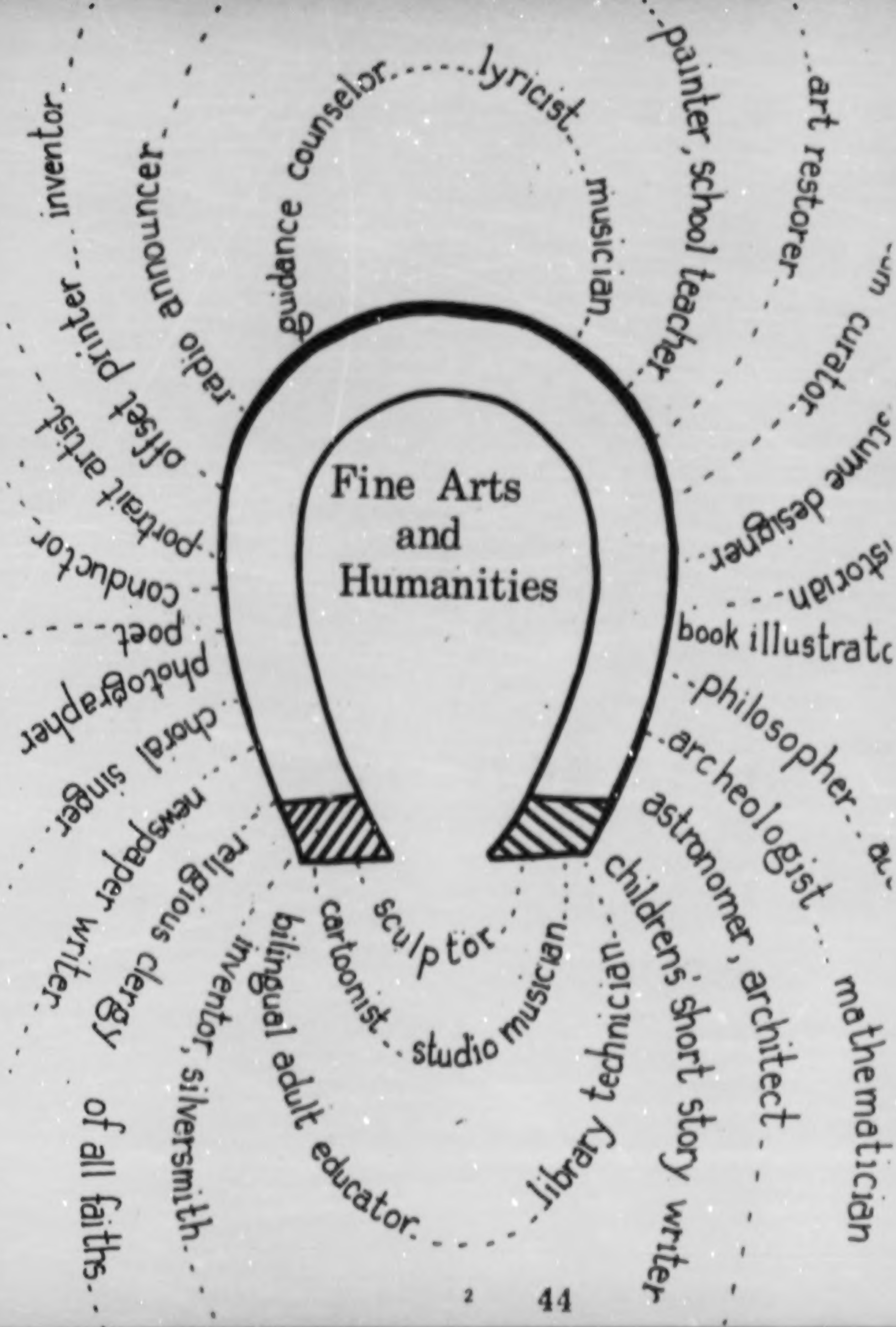
Name 1 work place.

1. ______________

Name 1 training site.

1. ______________

29-31 Q


Fine Arts and Humanities
inventor
radio announcer
guidance counselor
lyricist
musician
painter, school teacher
art restorer
um curator
stume designer
istorian
book illustrat
philosopher
au
archeologist
mathematician
astronomer, architect
childrens' short story writer
library technician
studio musician
sculptor
cartoonist
bilingual adult educator
inventor, silversmith
religious clergy of all faiths
newspaper writer
choral singer
photographer
poet
conductor
portrait artist
offset printer

INTERVIEW WITH SCULPTOR WHO USES WELDED METAL TECHNIQUE

Inez: Hello, Mr. Marco. I'm Inez from the City Middle School.

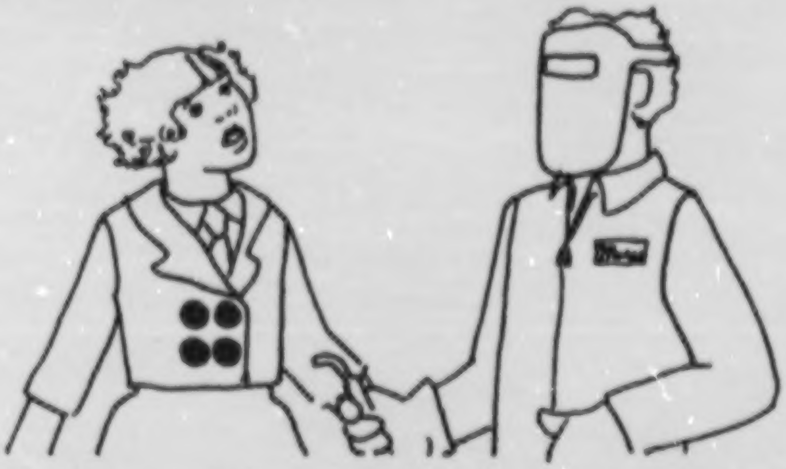
Marco: Come in, Inez. You're right on time. I like that.

Inez: Is this your studio? It's nothing like what I expected. It looks like my father's garage but has more windows. My father's a mechanic.

Marco: Then your father's work place must be fireproof, too. For me, it's very important that the place I work in be as fireproof as possible. I covered the old wood floor in here with metal sheets. And with cinderblock walls and an asbestos ceiling, I don't worry about my studio catching on fire. I keep a fire extinguisher, some sand, and water handy by my welding table, which has a steel frame and a fire-brick top. All the windows are for good ventilation. Some metals give off toxic fumes when they're welded. Sometimes I use a gas mask.

Inez: I didn't know welding was so dangerous.

Marco: It's not dangerous if you know what you're doing, and the first thing you have to know about welding is that sparks can fly and start a fire. I keep flammable things at least 30 feet away from the welding area and make sure I'm wearing the appropriate protective clothing.



Inez: Is this space helmet part of your protective clothing?

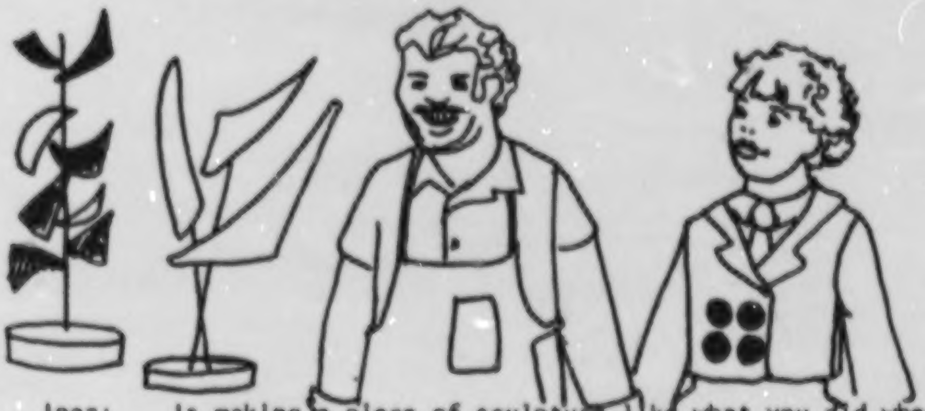
Marco: Yes. It's a welder's helmet. The face shield is made of a special material that filters out the harmful rays when I'm arc welding. Asbestos leggings and asbestos gloves also help protect my body from sparks and harmful rays. I always wear these boots with steel toes, too. If a heavy piece of metal falls on my foot while I'm working, I'm protected. And I make sure any other clothing I wear has no cuffs or loose folds. When I'm flame welding, I use these goggles and leather gloves and a leather apron. I always wear long sleeves, too.

Inez: It sounds like you have to pay more attention to welding than sculpting.

Marco: No, you have to pay attention to both to do a good job. I used to work full-time as a welder--learned the trade in vocational school when I was still a high school student. For years I worked in industry. I enjoyed welding, so it was easy for me to become very good at it, with lots of practice and interest. But I've always been fascinated by metal, ever since I was a kid. I like the feel of it and the permanence of it. My father worked in a scrap metal yard, and I used to go there with him whenever he'd let me tag along. He'd let me play around there. I'd sing to myself while I stacked small pieces up and made different designs and structures. I guess that was my first "training" as a sculptor.

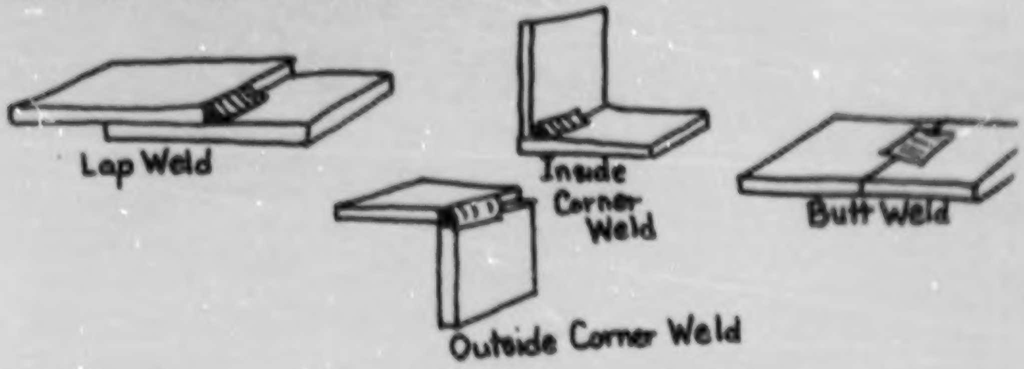
Inez: Is that when you decided to become a sculptor?

Marco: No. I didn't even know what a sculptor was. I was just having a good time. In fact, I didn't think about being a sculptor until I was already making welded metal sculptor. It happened like this: I learned my welding trade so well and enjoyed it so much that I opened my own repair shop. When business was slow, I "played" with metal scraps I had lying around in the shop, just like I did at the scrap metal yard my father worked in. Only this time, I added my welding skills to my designs and structures. I got so I wanted to "play" all the time, but I knew I needed to know more about the techniques of sculpting. I took courses at night in an art school--studied drawing and design, and then took a studio course in welded metal sculpture. I learned some important steps in making a piece of sculpture. I made a lot of pieces before I sold my first piece. Then I started calling my work place a studio.



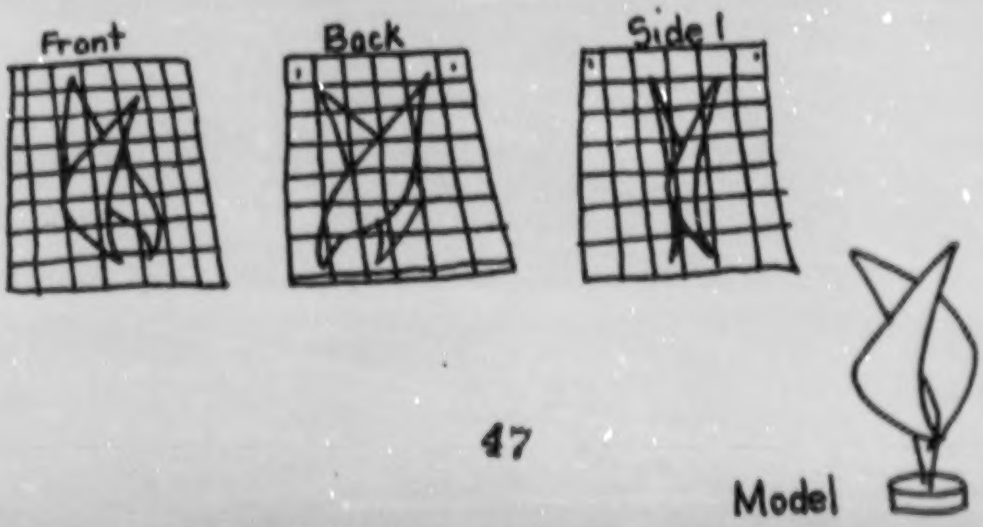
Inez: Is making a piece of sculpture like what you did when you worked in industry?

Marco: Mostly, no. It's very different. I have few restrictions or restraints on what I do. I'm free to experiment as much as I want to with all different kinds of metals: iron, steel, alloys of all kinds, copper, brass, bronze, aluminum, gold, lead, nickel, palladium, pewter, platinum, silver, tin, zinc. I've worked with all of them, though mostly I use what's available at junk and scrap yards. I experiment with different types of welds, too: inside corner, outside corner, butt, vertical, lap, overhead. I can try whatever type of weld I want on whatever metal I want. If I'm satisfied with the results, then what I've done is right. In industry, I was always told what to do and how to do it: "use this kind of weld on this kind of metal." It's important and right in industry, when millions of peoples' lives might depend on one's work. But I like to try new things, even though they don't always work.



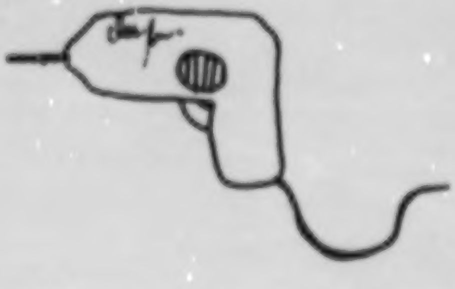
Inez: Tell me what you do when you make a piece of sculpture.

Marco: First, I make drawings, or designs, of what I want it to look like--from the left side, the right side, back, front, top, depending on what I intend to make. Then I make a small model. I test the metal I want to use to make sure it'll hold up the way I want it to. Then I test out different types of welds. Once I'm satisfied with my model, I plan what tools I'll need for my finished piece and make sure they're in good working order. If I plan to use extra thick metal, or heavy plate or structural steel, I prepare my arc welding equipment. For thinner metals I will flame weld. For each method I use different equipment. If my oxygen cylinder leaked, the gas would burn anything it touched, and the cylinder would blast off like a rocket. Rockets are for Cape Kennedy--I don't want any in my shop. I'm always checking my equipment for leaks.



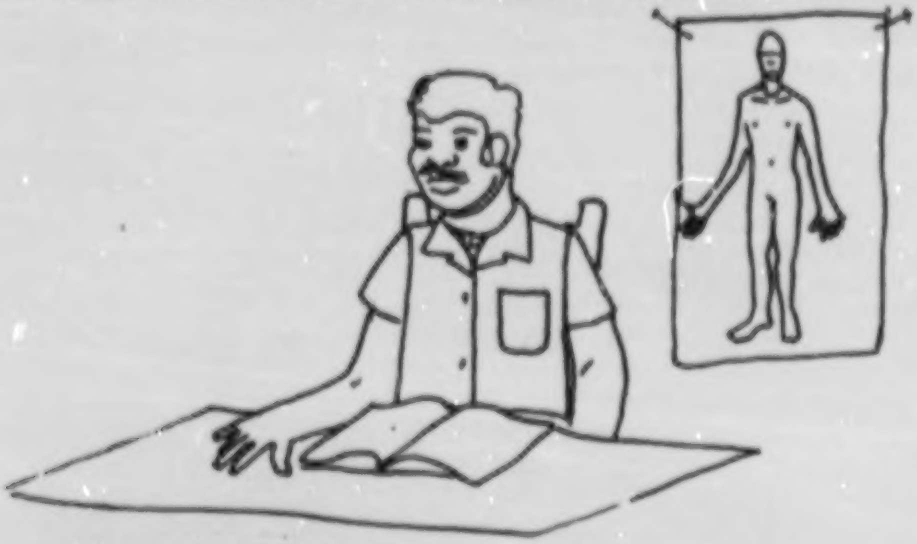
Inez: Do you ever get tired of having to be so safety-conscious all the time?

Marco: No. It's all habit with me. Once it's done, my mind is free to concentrate on the tasks at hand. I cut, bend, and weld the metal according to my design, but always leave myself the option of making changes in my plan. I use hacksaws, bolt croppers, pliers, electric drills, rotary wire and bristle brushes, vice grips, and anvil and ball peen hammers to forge metal into the shapes and forms that express my ideas. And something special happens to me every time I'm working on a piece of sculpture. It's like my tools and I are working together. Sometimes they seem to guide me.



Inez: Now you're successful and famous. Have you learned all you need to know?

Marco: Well, I'm good at what I do, and I make good money. Sometimes I sell a lot, and sometimes I sell hardly anything. There's a lot of luck involved. But there's still a lot I want to learn. I'm taking a course in anatomy now. The more I understand about how and why the human body works, the more my sculpture will show life. I'm also taking a course in metal finishing. I'm learning more about how to use acids that "rust" metal, and about metal sealers that stop and preserve the amount of "rust" I want on my piece of sculpture. I plan to take a course next fall in new specialized welding techniques. Knowing about different ways to do things is my most important tool.



Inez: How do you find time to do all this? You must work 24 hours a day.

Marco: Sometimes I do. When I'm feeling creative, I don't leave the shop at all. But then I'll spend two weeks or so doing something entirely different. I think that's when I get some of my best ideas. Being a welded metal sculptor means being part technician, part artist, part craftsperson.

Inez: Thanks for the interview. Next time I go past the metal dump, it'll seem like more than just a scrap heap.

Quiz Yourself

...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR..

Below are some questions about skills and tasks, tools and equipment, training sites, and the work place of a SCULPTOR.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the interview and go back over these quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by a SCULPTOR.

1. ____________________
2. ____________________
3. ____________________

What is 1 use for each tool or piece of equipment you have listed?

1. ____________________
2. ____________________
3. ____________________

Name 1 training site for a SCULPTOR.

1. ____________________

Name 3 skills and/or tasks of a SCULPTOR on the job.

1. ____________________
2. ____________________
3. ____________________

Name 1 place where you might find a SCULPTOR at work.

1. ____________________

..SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR.

SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR..

...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR...SCULPTOR..

Q 3-7

LIBRARY TECHNICIAN

SKILLS AND TASKS

Supports and assists professional librarians and supervises assistants.

CHILDRENS' READ HOUR
TUESDAYS AT 1

Technical Services

Prepares library materials and equipment for readers' use such as numbers on the books and pamphlets.

Keeps files up to date with special materials.

Operates and maintains audiovisual equipment.

Purchases and processes library materials.

Catalogs new books and other additions to the library's collections.

Inspects books and other loaned materials for damage; repairs materials when necessary.

Operates and keeps track of computer-based data systems.

Users' Services

Answers basic questions asked by patrons.

Assists patrons in locating books and periodicals, in the use of catalogs, indexes, and equipment such as microfilm, slide projectors, card catalogs, etc.

Handles book traffic--checking books in and out of library.

Prepares and sends overdue notices, collects fines, and issues new library cards.

Provides information on library services, facilities, and rules to patrons and public.

Arranges displays of books, artifacts, anything of interest.

LIBRARY TECHNICIAN

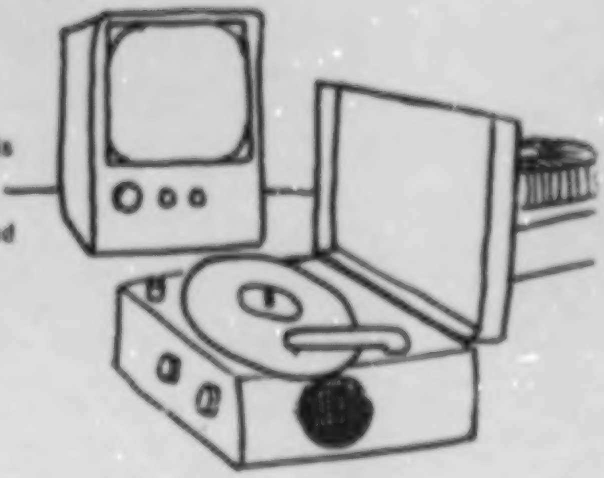
TOOLS AND EQUIPMENT

Audiovisual equipment--phonographs, slide projectors, microfilm viewers, televisions, and video tape recorders.

Computers.

Books, card catalogs, shelves, book trucks or carts (when loaded may contain 200 pounds or more of books).

Non-book media (maps, slides, artifacts, and special display items).



WORK ENVIRONMENT AND CONDITIONS

Public and private libraries.

Quiet, well-lit, orderly rooms.

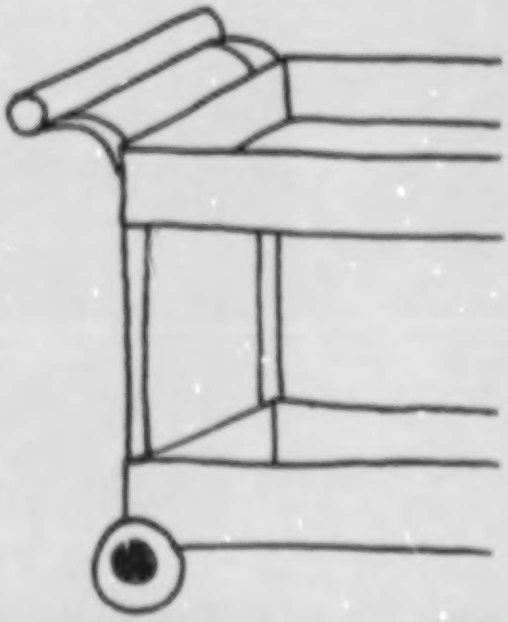
Stand a lot, must have physical stamina for pushing loaded book carts.

TRAINING

2 year program in library technology at a technical institute such as a community college.

On-the-job.

Helpful high school courses: English and literature, public speaking, and general business methods.



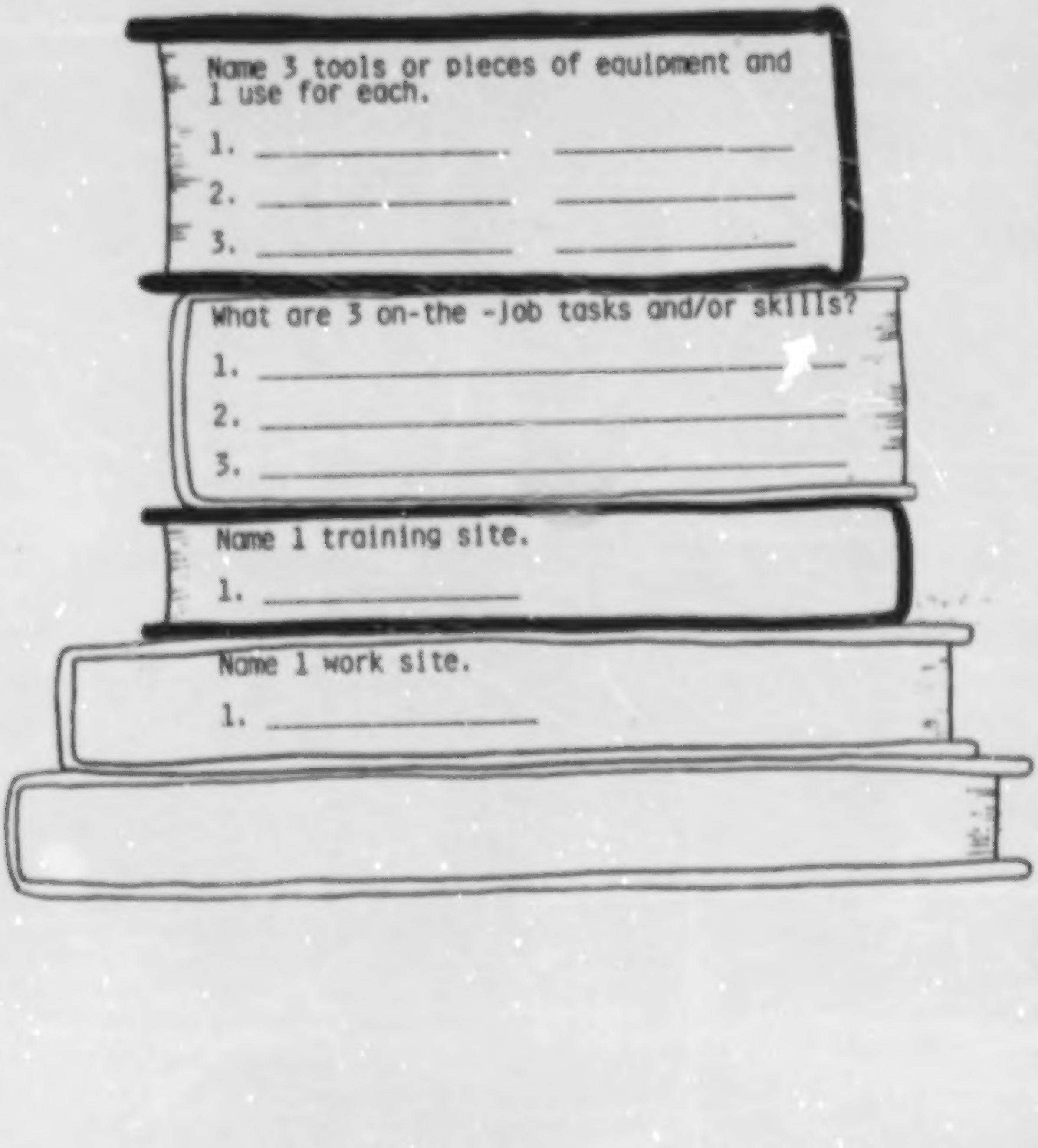
ADVANCEMENT

On-the-job experience can lead to technicians jobs at larger or special libraries.

More schooling can lead to a professional degree as a librarian.

Quiz Yourself: Library Technician

Read the questions and fill in the answers. Reread the fact sheet for any answers you may have missed. Then go back and fill in those blanks.



Name 3 tools or pieces of equipment and 1 use for each.

1. ______________ ______________
2. ______________ ______________
3. ______________ ______________

What are 3 on-the -job tasks and/or skills?

1. ______________________________
2. ______________________________
3. ______________________________

Name 1 training site.

1. ______________

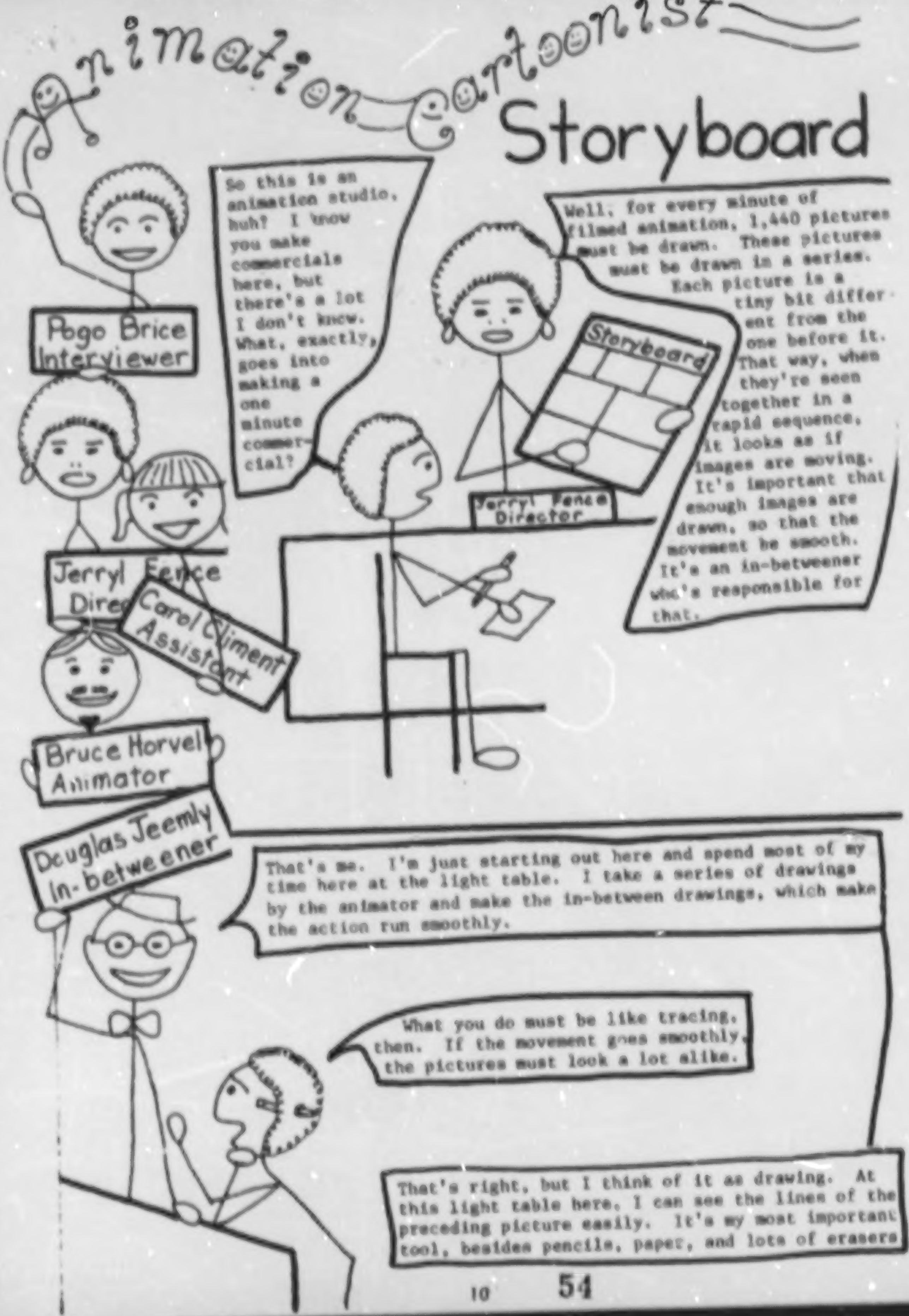
Name 1 work site.

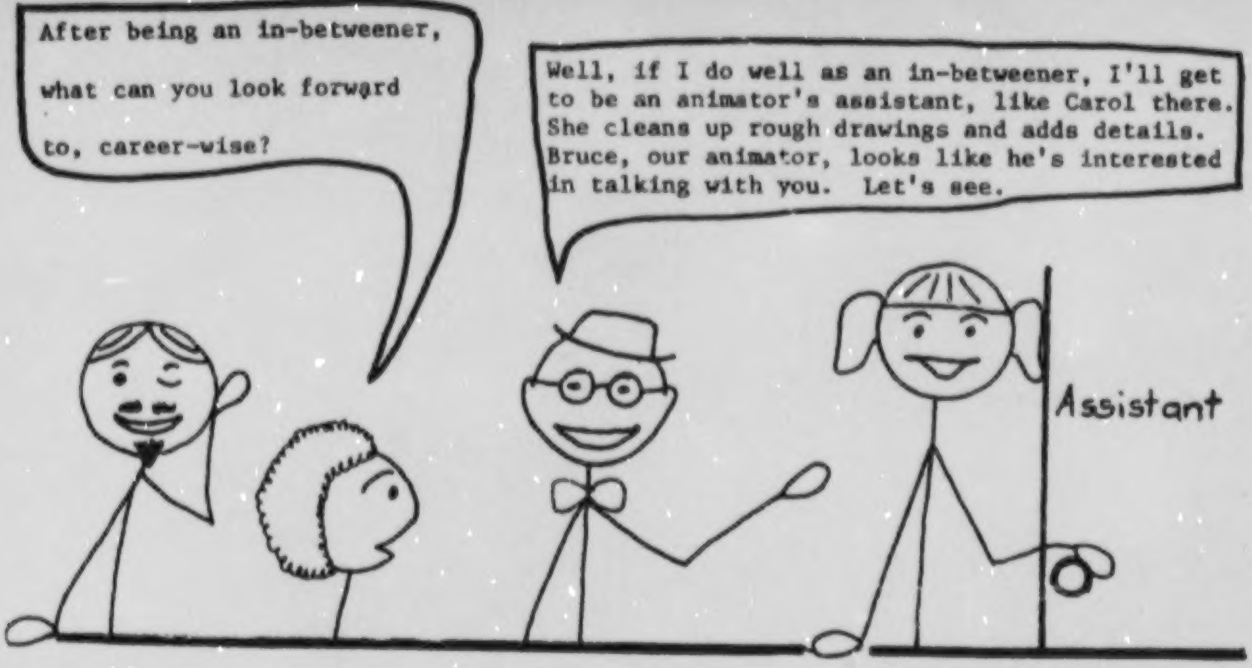
1. ______________

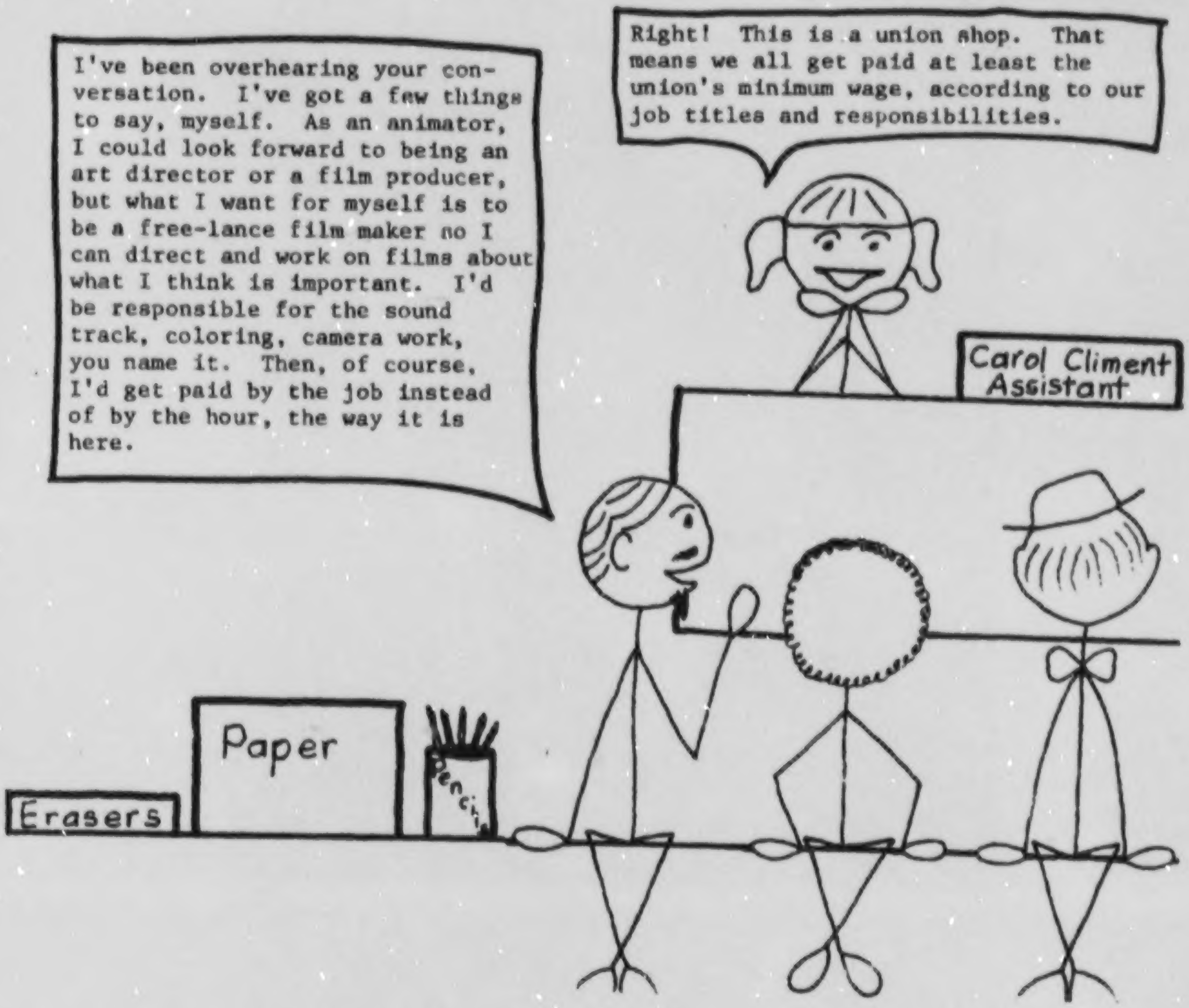
Q 8-9

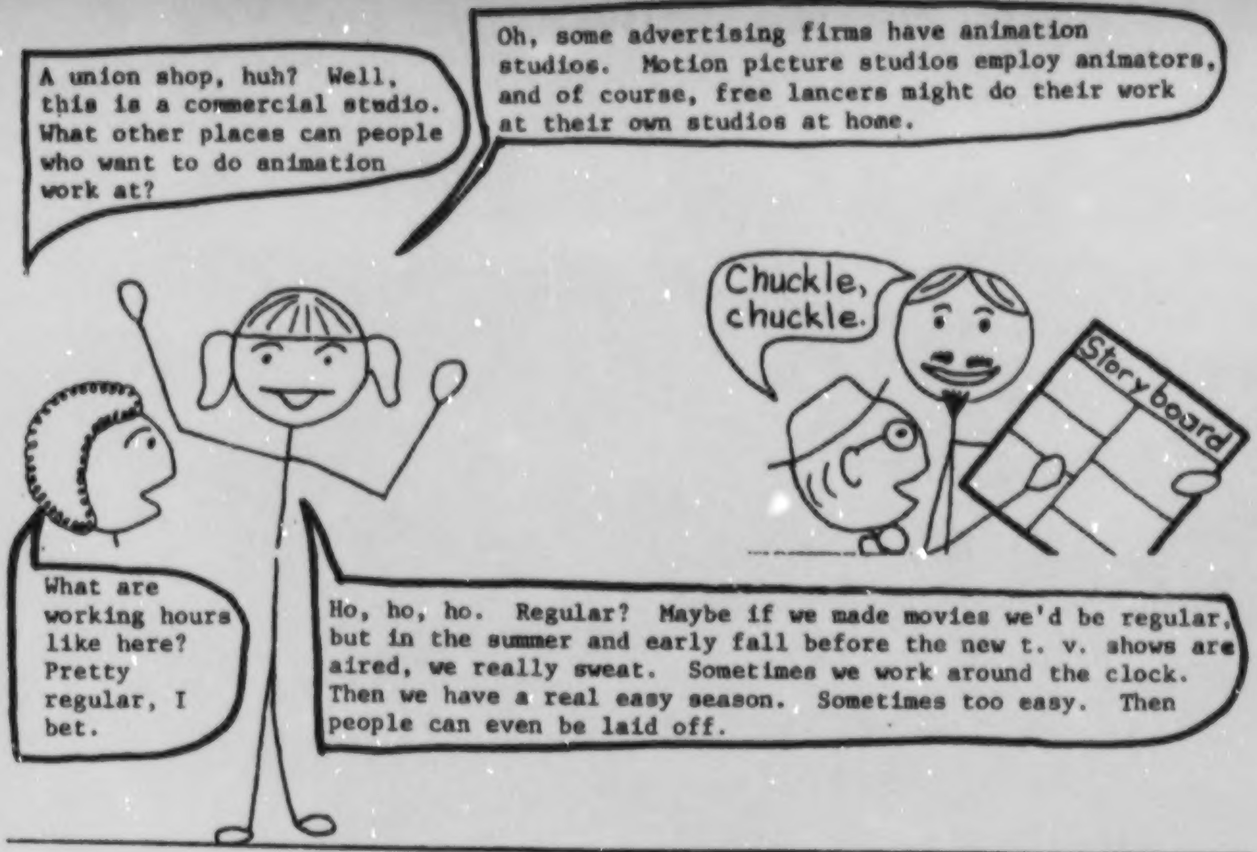
Animation Cartoonist

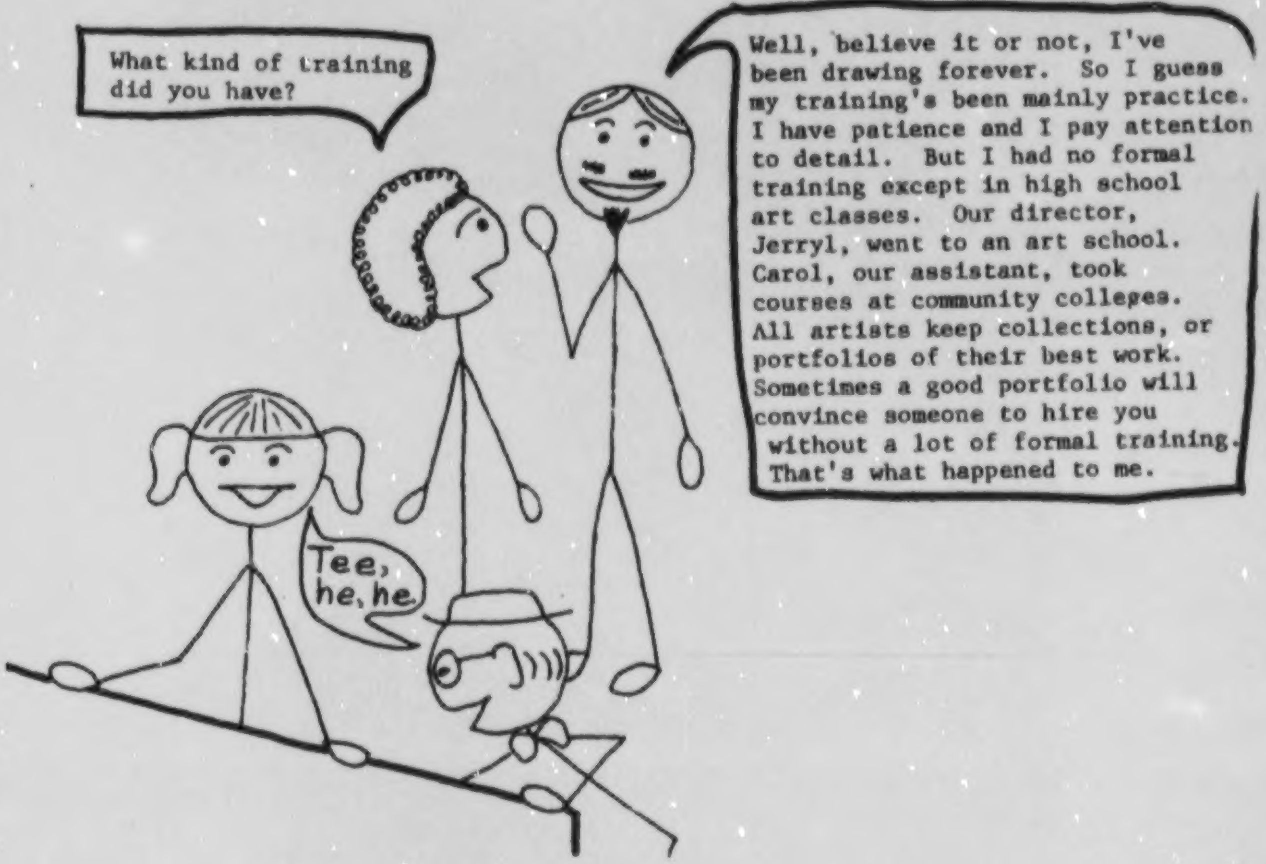
Storyboard

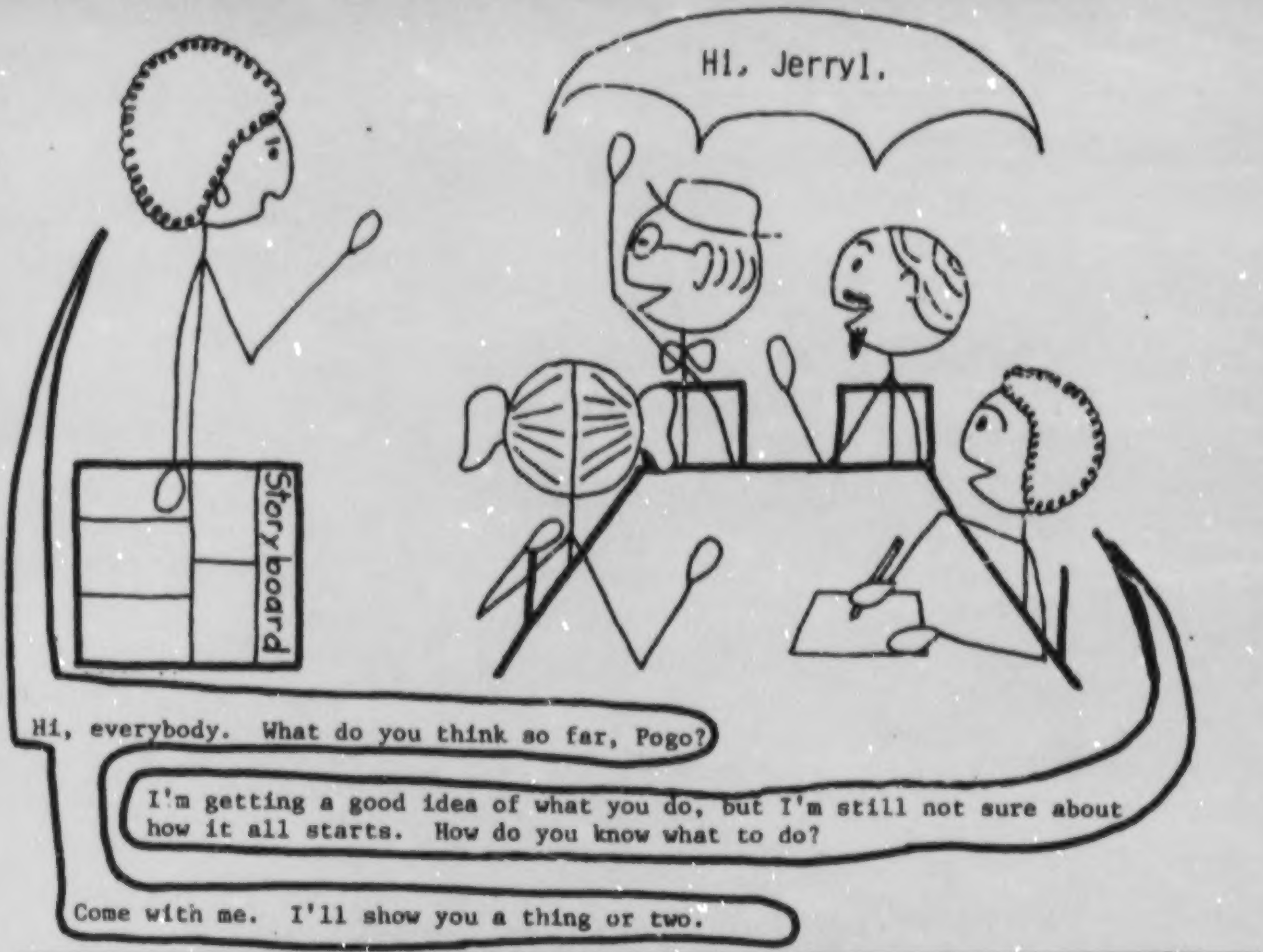

Pogo Brice Interviewer
Jerryl Fence Director
Carol Climent Assistant
Bruce Horvel Animator
Douglas Jeemly In-betweener
So this is an animation studio, huh? I know you make commercials here, but there's a lot I don't know. What, exactly, goes into making a one minute commercial?
Storyboard
Well, for every minute of filmed animation, 1,440 pictures must be drawn. These pictures must be drawn in a series. Each picture is a tiny bit different from the one before it. That way, when they're seen together in a rapid sequence, it looks as if images are moving. It's important that enough images are drawn, so that the movement be smooth. It's an in-betweener who's responsible for that.
Jerryl Fence Director
That's me. I'm just starting out here and spend most of my time here at the light table. I take a series of drawings by the animator and make the in-between drawings, which make the action run smoothly.
What you do must be like tracing, then. If the movement goes smoothly, the pictures must look a lot alike.
That's right, but I think of it as drawing. At this light table here, I can see the lines of the preceding picture easily. It's my most important tool, besides pencils, paper, and lots of erasers

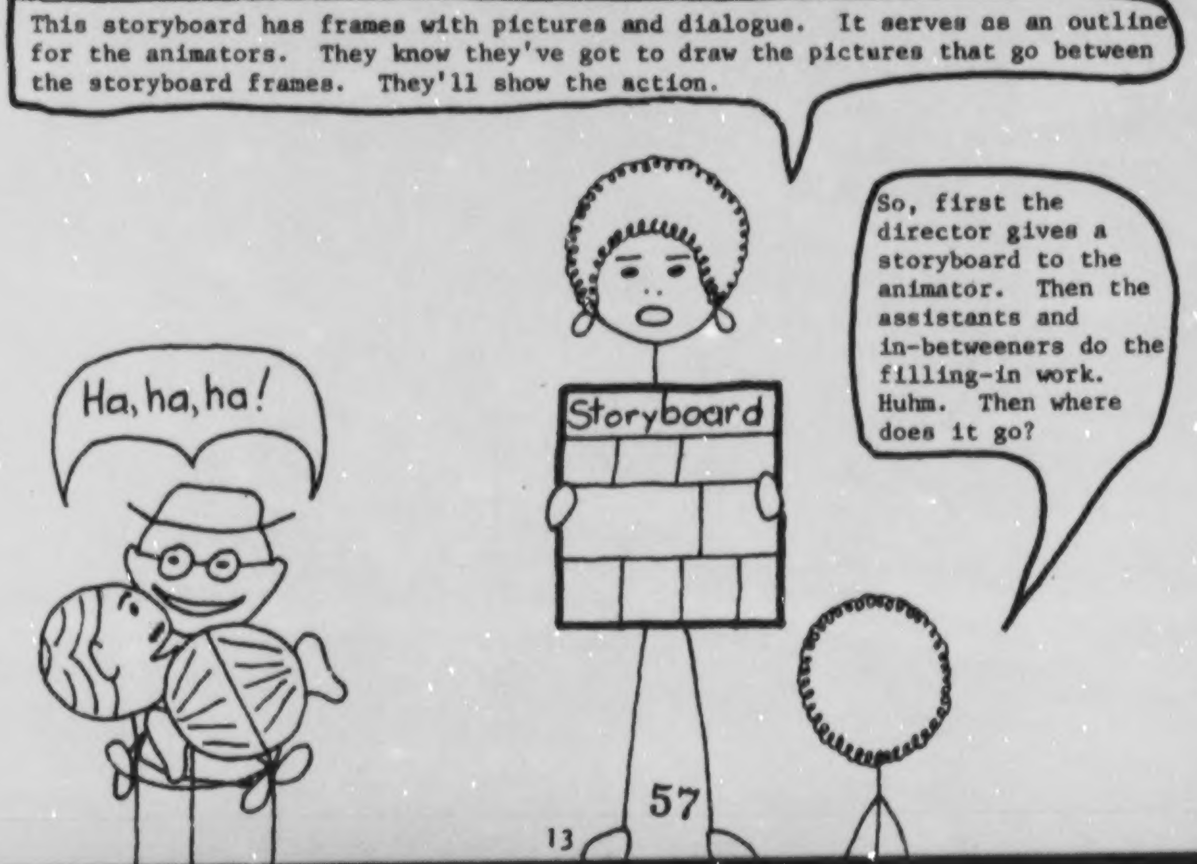

After being an in-betweener, what can you look forward to, career-wise?
Well, if I do well as an in-betweener, I'll get to be an animator's assistant, like Carol there. She cleans up rough drawings and adds details. Bruce, our animator, looks like he's interested in talking with you. Let's see.
Assistant

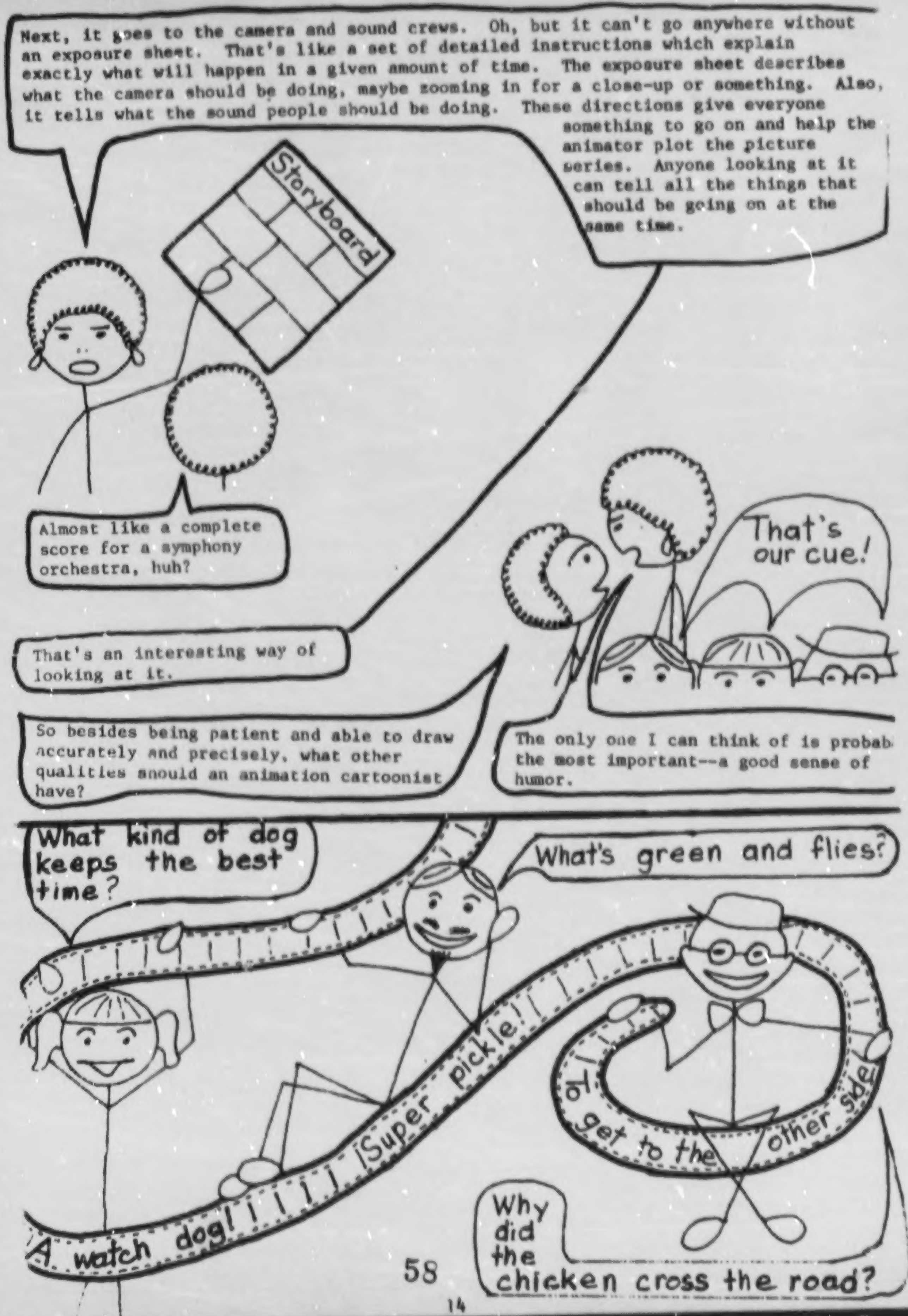

I've been overhearing your conversation. I've got a few things to say, myself. As an animator, I could look forward to being an art director or a film producer, but what I want for myself is to be a free-lance film maker so I can direct and work on films about what I think is important. I'd be responsible for the sound track, coloring, camera work, you name it. Then, of course, I'd get paid by the job instead of by the hour, the way it is here.
Right! This is a union shop. That means we all get paid at least the union's minimum wage, according to our job titles and responsibilities.
Carol Climent
Assistant
Paper
Erasers
Pencils


A union shop, huh? Well, this is a commercial studio. What other places can people who want to do animation work at?
Oh, some advertising firms have animation studios. Motion picture studios employ animators, and of course, free lancers might do their work at their own studios at home.
Chuckle, chuckle.
Storyboard
What are working hours like here? Pretty regular, I bet.
Ho, ho, ho. Regular? Maybe if we made movies we'd be regular, but in the summer and early fall before the new t. v. shows are aired, we really sweat. Sometimes we work around the clock. Then we have a real easy season. Sometimes too easy. Then people can even be laid off.


What kind of training did you have?
Well, believe it or not, I've been drawing forever. So I guess my training's been mainly practice. I have patience and I pay attention to detail. But I had no formal training except in high school art classes. Our director, Jerryl, went to an art school. Carol, our assistant, took courses at community colleges. All artists keep collections, or portfolios of their best work. Sometimes a good portfolio will convince someone to hire you without a lot of formal training. That's what happened to me.
Tee, he, he.

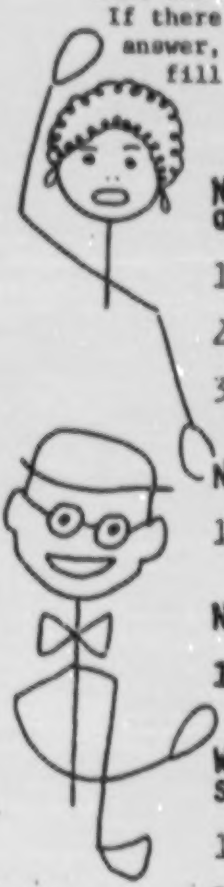

Hi, Jerryl.
Storyboard
Hi, everybody. What do you think so far, Pogo?
I'm getting a good idea of what you do, but I'm still not sure about how it all starts. How do you know what to do?
Come with me. I'll show you a thing or two.


This storyboard has frames with pictures and dialogue. It serves as an outline for the animators. They know they've got to draw the pictures that go between the storyboard frames. They'll show the action.
So, first the director gives a storyboard to the animator. Then the assistants and in-betweeners do the filling-in work. Huhm. Then where does it go?
Ha, ha, ha!
Storyboard


Next, it goes to the camera and sound crews. Oh, but it can't go anywhere without an exposure sheet. That's like a set of detailed instructions which explain exactly what will happen in a given amount of time. The exposure sheet describes what the camera should be doing, maybe zooming in for a close-up or something. Also, it tells what the sound people should be doing. These directions give everyone something to go on and help the animator plot the picture series. Anyone looking at it can tell all the things that should be going on at the same time.
Storyboard
Almost like a complete score for a symphony orchestra, huh?
That's an interesting way of looking at it.
That's our cue!
So besides being patient and able to draw accurately and precisely, what other qualities should an animation cartoonist have?
The only one I can think of is probab the most important--a good sense of humor.
What kind of dog keeps the best time?
What's green and flies?
A watch dog!
Super pickle!
Why did the chicken cross the road?
To get to the other side!

Quiz Yourself: Animation Cartoonist

Read the questions and fill in the blanks. If there are any questions you can not answer, reread the cartoon and go back to fill them in after.



Name 3 of our tools or pieces of equipment **and 1** use for each.

1. ____________ ________________
2. ____________ ________________
3. ____________ ________________

Name 1 **of our tr**aining sites.

1. ____________________

Name 1 of our work sites.

1. ________________

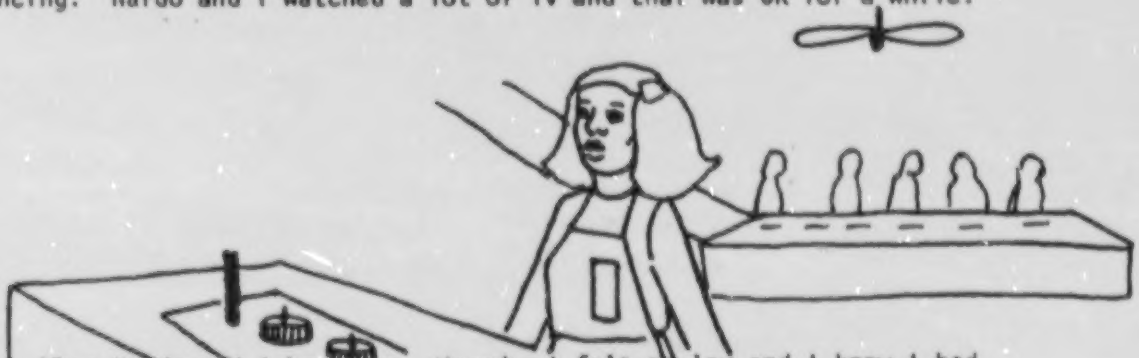
What are 3 of our **on-the-job t**asks and/or **sk**ills?

1. ______________________________
2. ______________________________
3. ______________________________

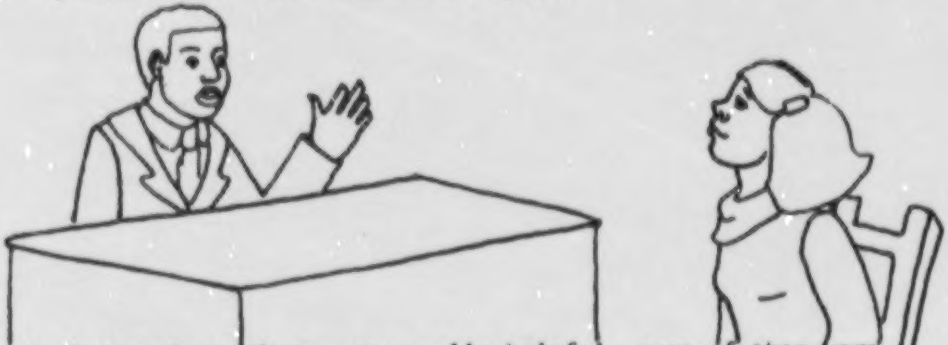
Q 10-14

ISABEL PORTERA, ADULT INSTRUCTORS' AIDE

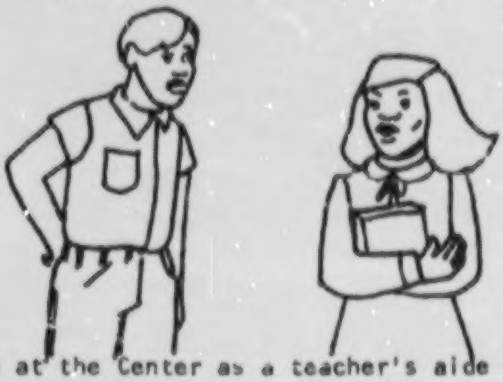
My name is Isabel Portera and believe it or not, I've got a job helping people learn English at an Adult Learning Center in my neighborhood. I say "believe it or not" because I myself dropped out of high schoo three years ago. I dropped out 'cause I wanted the freedom I couldn't have living at home with my strict father and the kids. I figured that if I moved out, life would start to get exciting. You see, I had a boyfriend and I wasn't allowed to go out with him. Also, I wanted to do more dancing. Classes were in the city at night, and of course I wasn't permitted to take night classes anywhere. Well, I moved out and began looking for work. I worked in three different factories within two years. They were alike in most ways, low pay and lousy conditions: loud noises, cement floors to stand on all day, chemical smells. By the time I got home at night, mostly, I was too tired to even think about dancing. Nardo and I watched a lot of TV and that was OK for a while.



When Nardo and I broke up, though, I felt so low and I knew I had to really do something for myself. I decided to go to school so I could get a good job. That meant attending an Adult Learning Center so I could work on getting my high school equivilency diploma. I went to the Center twice a week and studied there. It was easy to work with no distractions. There are individual booths or carrels which are private and quiet. There are also tables for doing group work and tape cassette rooms and offices. The offices are where counseling is done. If someone has a problem, the instructor can help a student with it. Sometimes, this means referring the student to an agency that helps people. Other times, it means helping someone get a job or into a work-training program.



Although the teachers there were really helpful, none of them were Hispanic so they had trouble sometimes understanding what Latino students wanted to say. Well, after I'd been attending the Center regularly for months, the instructors asked me to help out once in a while with other latino students. After I earned my high school equivilency diploma, I was offered good hourly pay to help out at the center. That's what I do now. When there aren't a lot of latino students around, I file records and arrange books. I'm getting pretty familiar with a lot of texts and I'm responsible for ordering the best ESL materials (that's teaching English as a Second Language). When I was younger, I always took being able to speak two languages for granted. Now I really appreciate it and know that not only would I not have this job without it, but that I can get a lot of different sorts of work, just because I'm bilingual and I'm willing to work hard.

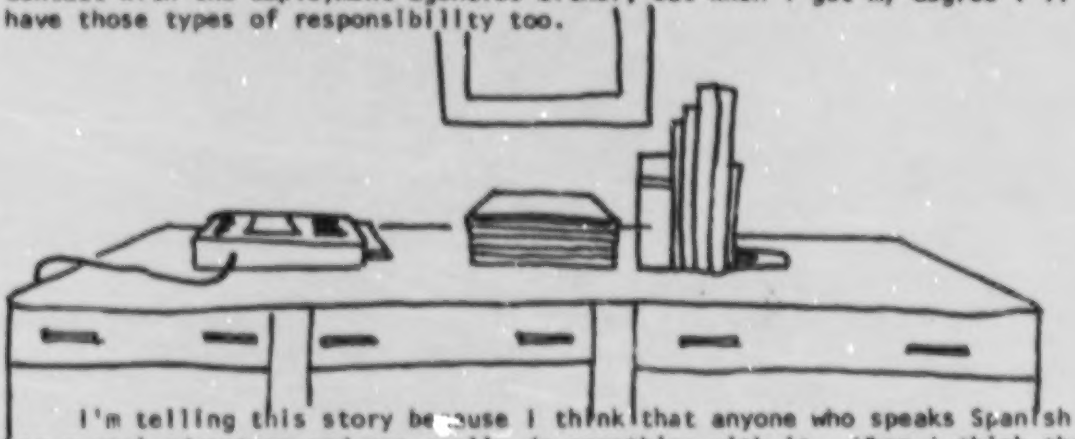


I was hired here at the Center as a teacher's aide with the understanding that I would be working toward a degree. Actually, since my work at the Center is hourly, I can work part time and still go to school. I take dance classes there as part of my studies and I'm getting a degree in Spanish. Although Spanish is my native tongue, college study is hard work. Grammar and literature don't come as easy as learning to talk, you know. Knowing these things will really come in handy if I ever want to teach Spanish.

When I earn a degree, I'll be put on regular salary as an adult education instructor. Then I'll be responsible for giving and marking tests, keeping attendance and performance records on students, doing counseling and referrals, and teaching "Life Skills" (that's stuff like reading and math related to real life situations like reading want ads, filling out forms, and getting the most for your money).

The largest portion of teaching I'll do will be ABE or Adult Basic Education, helping people to learn to read on a seventh grade level.

On the job now, I use most of the same materials I'll be using as an instructor. I use references, texts, and workbooks with the people I help. I do some typing (I'm learning). I use a blackboard, and a filing cabinet for student records. I also operate tape cassettes and even the film projector and video tape equipment. I don't do counseling and I don't do research to find employment or training opportunities for other students. I don't have contact with the employment agencies either, but when I get my degree I'll have those types of responsibility too.



I'm telling this story because I think that anyone who speaks Spanish has a real advantage and can really do something with it. When I think that I dropped out of high school and that now I'm helping people who've done the same thing, I feel really good about myself. And when I feel good about myself, I feel like dancing!

Quiz Yourself: Adult Instructors' Aide

Answer the questions below by filling in the blanks. Reread the story for any answers you did not know, then go back to fill in those blanks.

Name 3 of my tools or pieces of equipment, and 1 use for each.

____

____

____

Name 1 of my training sites.

____

What are 3 of my on the-job tasks or skills?

____

____

____

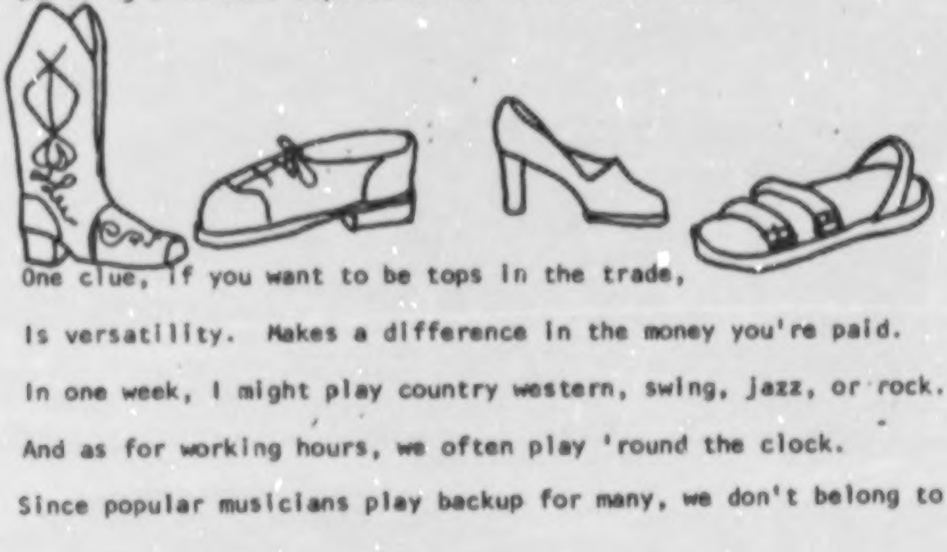
Name 1 of my work sites.

____

STUDIO MUSICIAN

As a studio musician, I've made it to the top.
With steady work through the grapevine, I'm skilled and I'm hot.
A union contact got me my first studio gig,
I played soleful blues bass for an album-cutting rig.
The union also sets up a minimum pay scale for beginners.
This helps musicians survive as they strive to be winners.

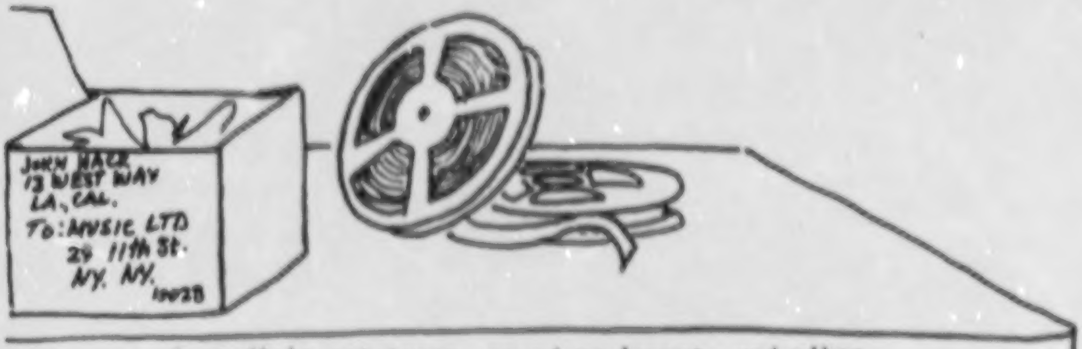
Before I was well-known, making a musical living was hard.
It was all part-time, and it was mostly in bars.
I worked fixing shoes during the day,
Building a musical reputation is filled with delay.



One clue, if you want to be tops in the trade,
Is versatility. Makes a difference in the money you're paid.
In one week, I might play country western, swing, jazz, or rock.
And as for working hours, we often play 'round the clock.
Since popular musicians play backup for many, we don't belong to any one band.

STUDIO MUSICIAN

Patience is needed as we try and try again,
Till we get it right at each session.
As we play we listen with headphones to others playing the same,
Recording us all is multi-tracking (a descriptive name).
So while cutting disks, we don't have to do it all at one time.
If some players are away, well, we get them on the line,
And send a tape through the mail, it will arrive without delay.
Techniques and methods sure have changed; this is the modern way.



A studio's got tapes, sound equipment, and mikes,
Instruments from synthesizers to Illyan pipes.
I look carefully at musical arrangements and scores;
Outside noise can't interfere, for we've got floating walls and floors.
Working conditions are fine, but when I play loud rock or jazz,
I wear special ear plugs with flaps.
When the music gets loud, the flaps close by themselves,
And when it gets softer, they relax.

STUDIO MUSICIAN

I get along with other musicians alright, though sometimes our egos clash.
Successful musicians know how to be cool; it helps them earn the biggest
pile of cash.
One good thing about studio work you see, is I can earn enough money in
a month,
To go on a vacation, for sweet relaxation.
Studio work's open to a few, but it's worth aspiring to.

Quiz Yourself: Studio Musician

Read the questions and fill in the blanks. Reread the poem for any answers you may have missed. Then go back and fill in those blanks.

Name 3 tools or pieces of equipment and 1 use for each.

______

______

______

What are 3 on-the-job tasks or skills?

______

______

______

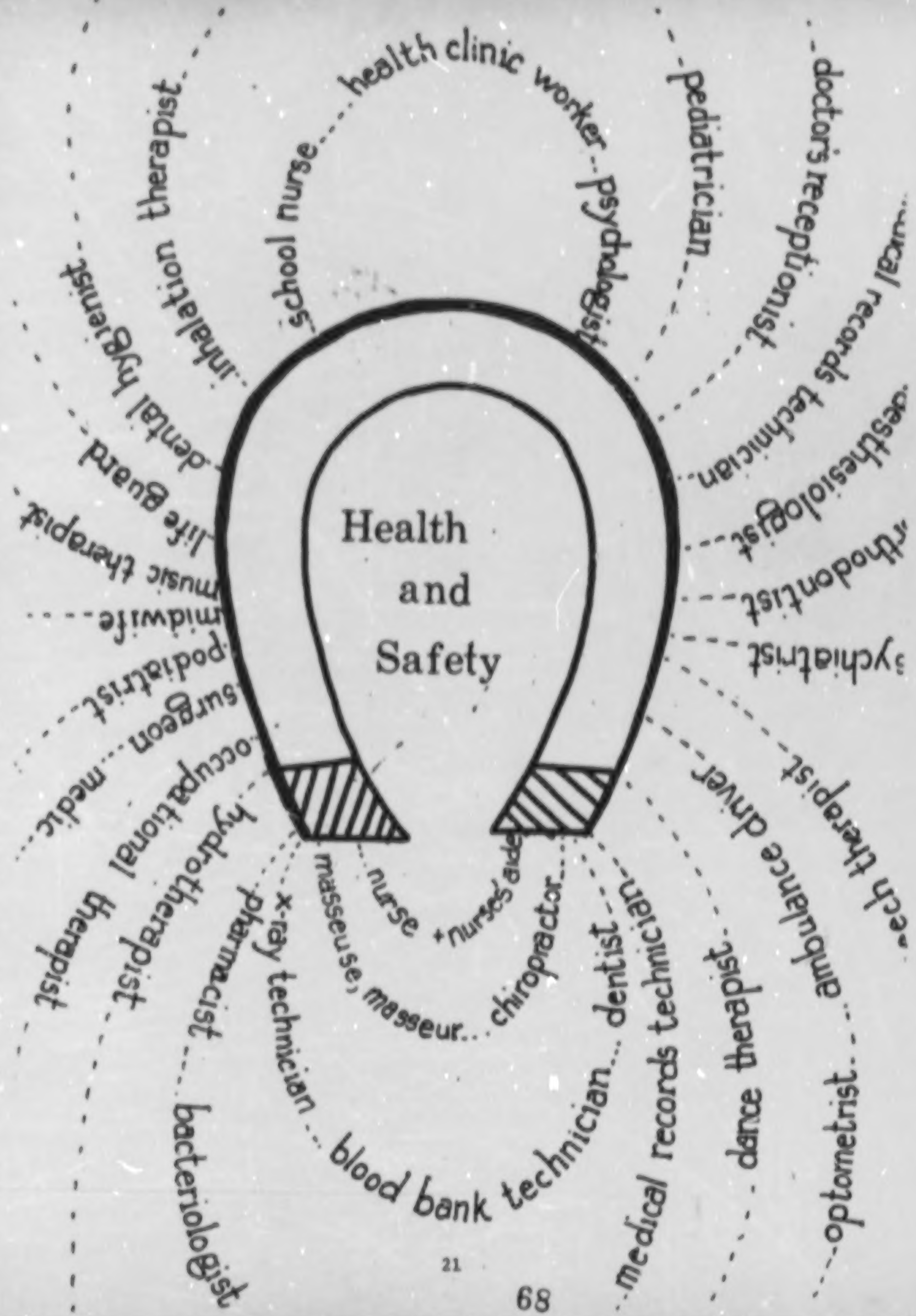
Name 1 training site

______

Name 1 work site

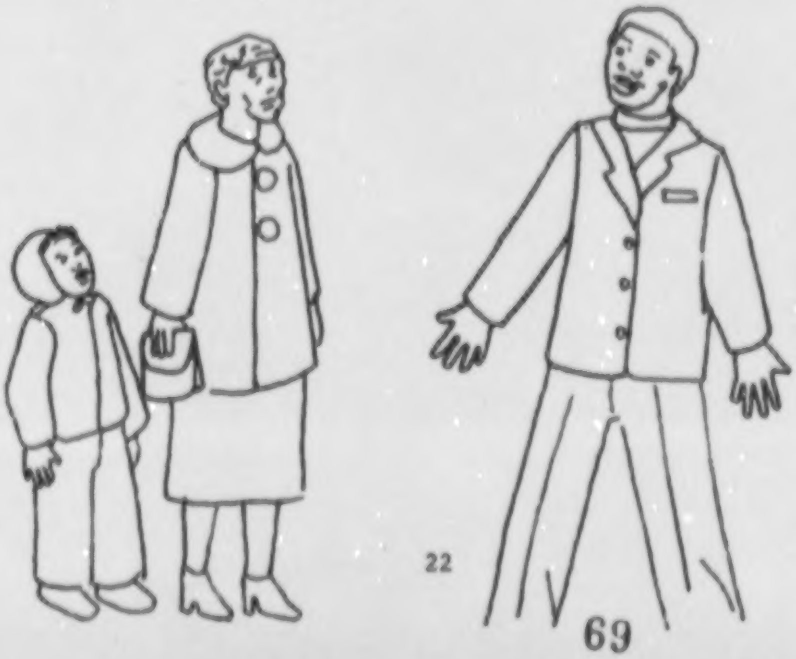
______

Q18-20


Health and Safety
health clinic worker
school nurse
psychologist
pediatrician
doctor's receptionist
ical records technician
inhalation therapist
dental hygienist
esthesiologist
rthodontist
ychiatrist
life guard
music therapist
midwife
podiatrist
surgeon
medic
occupational therapist
hydrotherapist
pharmacist
x-ray technician
masseuse, masseur
nurse + nurse's aide
chiropractor
dentist
medical records technician
dance therapist
ambulance driver
ech therapist
optometrist
blood bank technician
bacteriologist

INTERVIEW WITH JAMES BOLLIN, CHIROPRACTOR

Nancy:	Good morning, Doctor Bollin. I'm Nancy Dole from the high school. I'm really glad to be here.
Doctor:	Well, Nancy, I try to help you students out whenever I can. It wasn't too long ago that I was a student, myself. So, you're working on a special project to learn about health careers. Is that right?
Nancy:	Yes, and I guess first I need to know exactly what a chiropractor does.
Doctor:	Well, I treat patients with all sorts of health problems by manipulating body parts, especially the spinal column. Adjustments can correct problems like poor circulation or pinched nerves. You'd be surprised how many health problems are caused by these two conditions alone.
Nancy:	Hmmm. Before I got involved with this project, I didn't even know what a chiropractor did. How does someone become a chiropractor?
Doctor:	That's a long story, Nancy. First I graduated from high school and went into the ministry. That took four years of college preparation. When I was finished, I took a job as an assistant in a big city church. Over a period of five or six years, I became more aware of peoples' physical ills. It was then that I realized I wanted to work in the health field. I guess I saw it as a different kind of ministry. Well, I had a friend who was a chiropractor and I knew a little about the kind of work a chiropractor does. I was especially interested in chiropractic medicine because no drugs are used. Aligning people's bodies so that they function at their best seemed like a very natural way of healing. The only type of prescription chiropractors make are for more rest, exercise, corrective supports, or a change in diet.



Nancy: Well then, did you have to go to a special school?

Doctor: Yes. I went to a four year chiropractic college where I learned a lot of the same sorts of thing that doctors learn at med school.

Nancy: Well, when a patient comes for treatment, do you do the same things a doctor does?

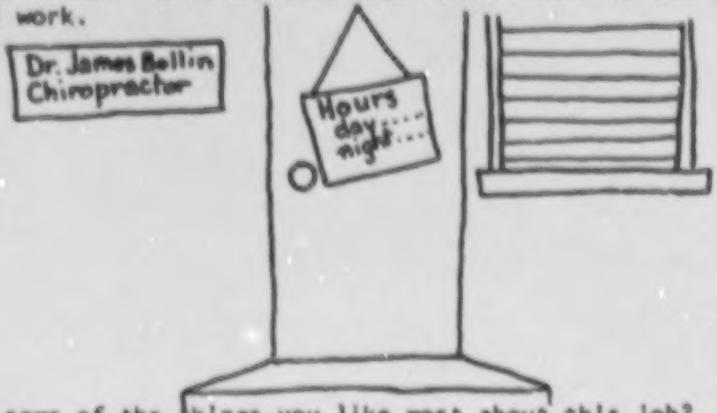
Doctor: First, my nurse writes down some personal information including the patient's health history for our records. Then we discuss any health problems bothering the patient at present. With this information, I can then begin the examination and manipulation of the body parts which are out of place. Sometimes I need to "see" my patient's bones. Then I send her or him to the radiology department at the hospital for X-rays. Most times, after a first adjustment, patients must come back soon because their muscles are used to supporting the spine in the old, habitual way. But after the first few adjustments, a patient might not have to return for months.

Nancy: Well, Dr. Bollin, besides X-rays, what other tools or pieces of equipment do you use at work?

Doctor: My hands are my most important tools. I use my hands to make all kinds of adjustments on a patient. Next in importance is the adjusting table. The patient may lie on the table. It moves and I can work on patients at many angles to adjust many body parts. I may also use a stethoscope, an otoscope, or an ophthalmoscope to check a patient's heart, ears, or eyes. I sometimes use a percussion hammer to check reflexes. Although I might use traction or ultra sound in special cases, many of my tools are simple things that many people can use at home like hot or cold packs, steam, or a muscle massager. Sometimes braces for the spine or neck may help a person hold an adjustment, and will keep supporting muscles from lapsing into the wrong places.

Nancy: That's interesting. I notice that you have a very nice private office here and that you have evening hours, too.

Doctor: Yes. That's because I want to make sure that working people don't have to take time off to be treated. I make my own hours here and I like that. Of course, some chiropractors work at clinics or for industrial firms. These doctors have less freedom to set the hours they will work.



Nancy: What are some of the things you like most about this job?

Doctor: Well, I love helping people, and I like working independently and the responsibility that goes along with it. Of course, it's also true that working conditions are very good here, a clean office, with plants and friendly assistants. As a healer, I guess most of all, I like the idea of using my hands to help people get well.

Nancy: Can you be promoted?

Doctor: I'm comfortable with the amount of money I make. I'm single and have only myself to support. I offer a sliding pay-scale to my patients so that they pay me according to what they can afford, and I'm not interested in changing that. But if I want to learn more, I can study special techniques such as acupuncture, a Chinese method of drugless therapy, special massage techniques, or other useful subjects. In fact, in some states, it's required that chiropractors study and learn new skills each year.

Nancy: Well, thanks a lot, Doctor. I think I've got a good idea about what you do. In fact, next time my mother gets a migraine headache, I'm recommending that she come here to see you.

Quiz Yourself

CHIROPRACTOR...CHIROPRACTOR...CHIROPRACTOR...CHIROPRACTOR...CHIROPRAC

Below are some questions about the skills and tasks, tools and equipment, training sites, and the work place of a CHIROPRACTOR.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the interview and go back over the quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by a CHIROPRACTOR.

1. ____________________
2. ____________________
3. ____________________

What is 1 use for each tool or piece of equipment you have listed?

1. ____________________
2. ____________________
3. ____________________

Name 1 training site for a CHIROPRACTOR.

1. ____________________

Name 3 skills and/or tasks of a CHIROPRACTOR on the job.

1. ____________________
2. ____________________
3. ____________________

Name 1 place where you might find a CHIROPRACTOR at work.

1. ____________________

CHIROPRACTOR...CHIROPRACTOR... CHIROPRACTOR...CHIROPRACTOR...CHIROPRAC

Q 22-25

DENTAL ASSISTANT

SKILLS AND TASKS

Helps dentist at the dental chair in treating patients:
- Sets up and hands dentist the proper instruments and materials;
- Keeps patient's mouth clear by using suction, rubber dams, and other devices;
- Writes clinical findings as dictated by dentist on patient's chart or record.

Performs duties of receptionist and business secretary:
- Checks mail, types letters, answers telephone, and makes appointments;
- Files treatment records, retrieves records for each appointment;
- Sends bills, receives payments, makes bank deposits;
- Orders dental supplies and materials;
- Keeps office neat, straightens magazines, waters plants;
- Prepares tray with instruments dentist will need during patient treatment.

Prepares room for dental work:
- Cleans and sterilizes bloody instruments for patients;
- Prepares materials for making impressions and restorations;
- Makes casts of teeth and mouth from impressions taken by dentist;
- Exposes X-rays and processes dental X-ray film.

Prepares patients for treatment:
- Makes patients comfortable in dental chair;
- Applies medicine to teeth and oral tissues;
- Removes excess cement used in filling process from surfaces of teeth;
- Places rubber dams on teeth to isolate them for individual treatment;
- Provides oral health instruction.

TOOLS AND EQUIPMENT

X-ray machine, X-rays, X-ray film, lead aprons.
Rubber dams, bibs, syringes, stool.
Patient's chart, telephone, appointment book, insurance papers, financial records.
Film, slides, filmstrips (to show detailed health care to patients), dental floss, toothbrush.

DENTAL ASSISTANT

WORK ENVIRONMENT AND CONDITIONS

Private dental offices, dental schools, hospital dental departments, State and local public health departments, private clinics, Public Health Service, Veterans Administration, and Armed Forces.

Well-lighted, clean environment with MUSAK.

X-ray and other equipment requires special handling.

TRAINING

1 and 2 year programs at junior and community colleges, vocational and technical schools.

On-the-job.

Helpful high school courses: biology, chemistry, health, typing, office practice (bookkeeping).

ADVANCEMENT

Experience and/or further training (ADA has accredited correspondence course that takes 2 years to complete and is equivalent to 1 year of academic study) may lead to employment as a dental technician or hygienist.

Quiz Yourself

DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTA

NT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENT

Below are some questions about the skills and tasks, tools and equipment, training sites, and the work place of a DENTAL ASSISTANT.

Answer these questions by putting the correct word or words in the spaces provided. If there are any questions you can not answer, reread the fact sheet and go back over the quiz questions until you can write all the correct answers in the spaces given.

Name 3 tools or pieces of equipment used by a DENTAL ASSISTANT.	What is 1 use for each tool or piece of equipment you have listed?
1. ____________	1. ____________
2. ____________	2. ____________
3. ____________	3. ____________

Name 1 training site for a DENTAL ASSISTANT.

1. ____________

Name 3 skills and/or tasks of a DENTAL ASSISTANT on the job.

1. ____________
2. ____________
3. ____________

Name 1 place where you might find a DENTAL ASSISTANT at work.

1. ____________

AL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT.

...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT...DENTAL ASSISTANT.........

? 27-28

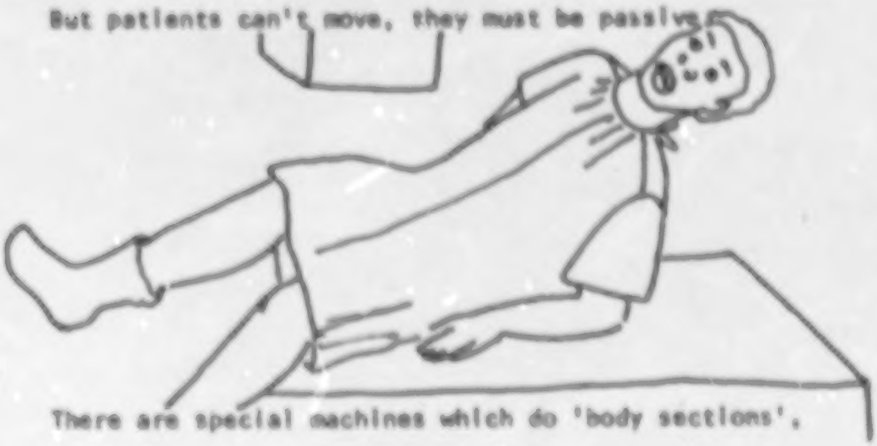
X-RAY TECHNICIAN

I help doctors take X-ray pictures of internal body parts,
Being dense, bones are easiest to see.
Drinking a dense barium solution helps digestive organs show,
As it coats each part, glub, glub, down and out it must go.
A fluoroscopic screen is used when we take shots of organs.
This screen is where shadows are cast.
As the barium traces the digestive tract,
We find reasons why some food isn't passed.

It's important that each patient's in the right position,
So I use a moving table with devices to restrain.
It's also my job to make folks feel safe,
So I make sure that they're comfy and I'm ready to explain.
An X-ray technician works in medical offices, labs, clinics, hospitals, and schools,
Always under supervision of a doctor or a dentist,
With radiation, it's important that we follow safety rules.

X-RAY TECHNICIAN

In order to protect folks from extra radiation,
We use lead gloves, aprons, and gonadal protection.
Patients wear special white sheets or gowns.
Some X-ray machines are massive.
You've got to be strong to push them around,
But patients can't move, they must be passive.



There are special machines which do 'body sections',
Taking body pictures layer by layer.
Tomography is the name of this process.
When I use these machines, I must work with care.

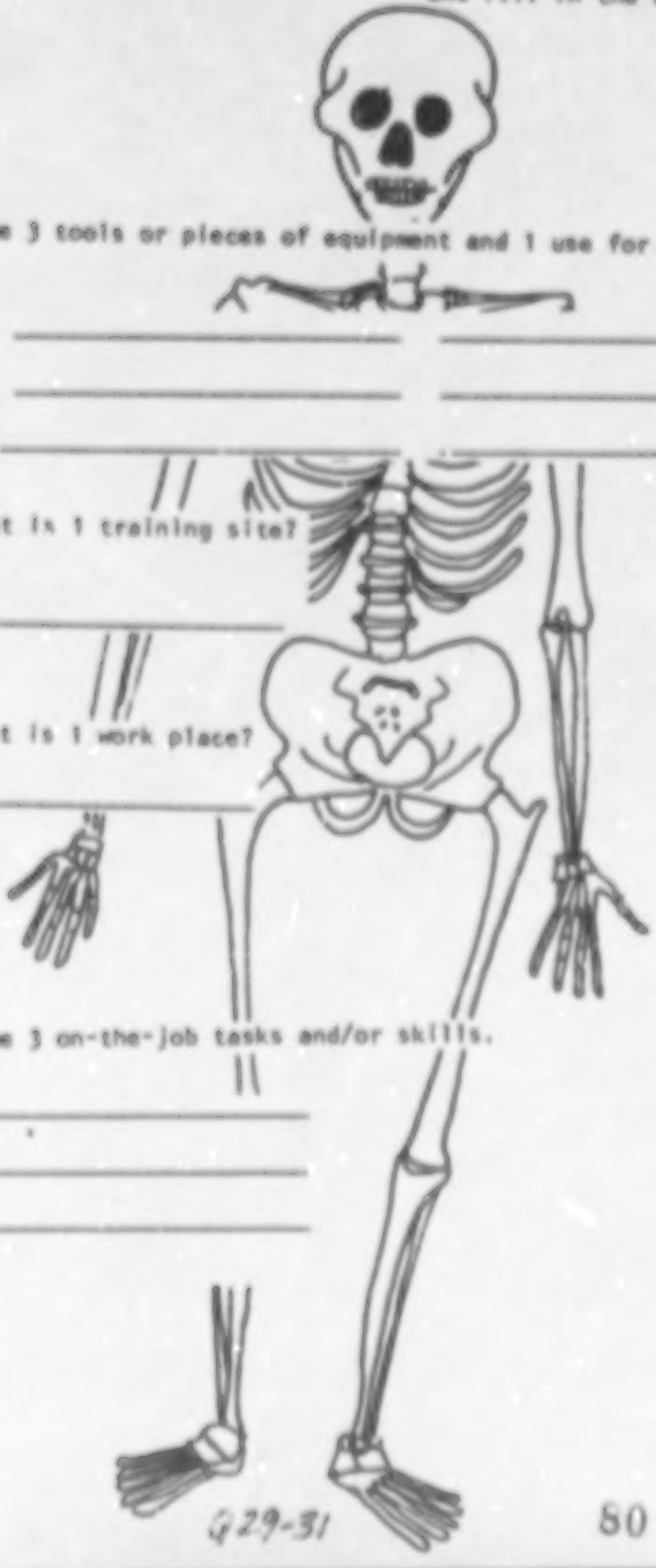
High school courses that have helped are science, math, and typing.
I'm glad I took them now, though then, I did a lot of griping.
They helped me get through Tech in two years, 'stead of three,
We learned all about equipment, and X-ray therapy.
I took courses at a college, but there are med school clinics, too,
And military service schools might be the route for you.

X-RAY TECHNICIAN

If I want to advance, I can take courses in my leisure,
To be a specialist or instructor in a special procedure.
If I want to be in charge of those who do what I do now,
I'll earn chief technologist's title by the sweat of my brow.

Quiz Yourself: X-Ray Technician

Read the questions below and fill in the blanks with the correct answers. Reread the X-RAY TECHNICIAN poem if you can not answer all the questions; then go back and fill in the blank spaces.



Name 3 tools or pieces of equipment and 1 use for each.

1. ______________________ ______________________
2. ______________________ ______________________
3. ______________________ ______________________

What is 1 training site?

1. ______________________

What is 1 work place?

1. ______________________

Name 3 on-the-job tasks and/or skills.

1. ______________________
2. ______________________
3. ______________________

Q29-31

ELLA STOVER, MASSEUSE

Well, I'll tell you a little about the type of work I do as a masseuse. Of course all people love to have their necks or backs rubbed to relieve tension, right? Well, I rub peoples' heads, necks, arms, feet, you name it, in order to relieve tension, to relax them. If you've never had a good massage, you don't know what you're missing. And if you get massaged regularly, I'm sure you agree that a good masseuse or masseur is a type of therapist. In this fast-moving world, plenty of people find it hard to relax. Of course, people with real physical problems should see doctors or chiropractors, but people who are just tense, or who have poor circulation, or who use their bodies a lot to do strenuous athletic work, need a good massage or rubdown to feel their best.

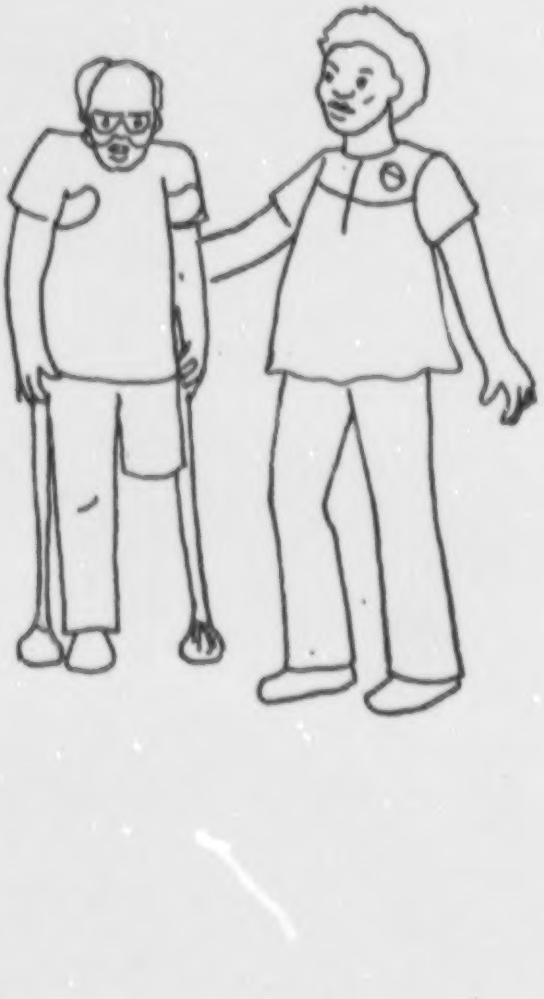
I work hard. It takes a lot of strength to rub and knead and pummel people's muscles until they are relaxed, especially people who are very big or just plain musclebound. My hands have to be strong and I've got to have the type of endurance it takes to massage as many as nine people in a day. Of course I use my weight a lot when I'm applying pressure and don't have to rely on my strength for every stroke. Some strokes are even relaxing for me. In fact, I started doing message because it made *me* feel good.

These days, I feel that I've got a real good setup for myself. I sure have come a long way from when I started out. With no license, I just relied on word of mouth to get publicity. I couldn't work at hotels or spas without a license, so I depended on my car to get me to people's homes. I took my heavy, fold-up massage table with me and my towels, and my oils. I was pretty conscientious and also kept records of where each client was sore or had pain. With a folder on everyone, I could see people's progress. These records also helped me remember which sorts of strokes each client liked the best. Word got around that I was good and cared about people, and friends encouraged me to get a license. Well, each state has its own licensing requirements, and in New York, an exam must be passed. The only accredited place to learn massage in this state is the Swedish Institute of Massage. Well, it's a two year program, and that's exactly what I did. I studied anatomy, physiology, and got to know the muscles, bones, even nerve pathways of human bodies. A lot of time was spent in the classroom, but we also did practical work. Now, even though I'm licensed, I go to workshops that are offered in schools and community centers to learn new techniques like acupressure (a Chinese form of massage done with the thumbs along sensitive points on the body).

So, what's my working life like these days? Well, I work at a YMCA in a very nice, clean studio. I'm responsible for getting my own clients, who pay me directly. The YMCA pays me almost nothing, but that's alright with me. I'm good for the Y because I bring in people who ordinarily might not come, and in exchange, I have a nice place to work, with more clients than I might get on my own. When a client comes in, we decide on a 30 or 45 minute massage. Then we talk about any sore spots or general health problems. As soon as I'm familiar with how my client's been feeling, I begin. I cover her body with a towel which will keep her from feeling cold or embarrassed. Then I rub oil into my hands and begin massaging.

I always work systematically, but I don't always give the same exact massage. That way, I don't get bored. I must be very sensitive to the musculature of my clients and to each person's body type. Something that helps me along is music. Although I don't always use it, I have a collection of very soothing tapes which I can play during massages. Some people really enjoy the tapes, and I get more pleasure from a massage when I work with music.

If I wanted a change of pace, I could work in a hotel or health spa where I'd get paid by the day regardless of the amount of work I did, but I like the responsibility of setting things up with individual clients. It makes me feel like I have more control over things, like I'm in business for myself. Actually, I've been thinking a lot about a really big change that will take a few more years of schooling: physical therapy. As a physical therapist, I'd work in a hospital or clinic. Not only would I get to do massage, I'd also gain a lot more respect as a professional. I'm saving up for further education but I'll probably end up taking out a loan if I decide to go to school full time. It's expensive, but possible. In the meantime, I'm good at what I do and I have about 100 satisfied clients. For right now, that's the important thing.



Quiz Yourself: Masseuse

Read the questions and fill in the blanks. If there are any questions you can not answer reread the story and go back to fill in those blanks.

Name 3 of my tools or pieces of equipment, and one use for each.

____

____

____

Name 1 of my training sites

____

Name 1 of my work places:

____

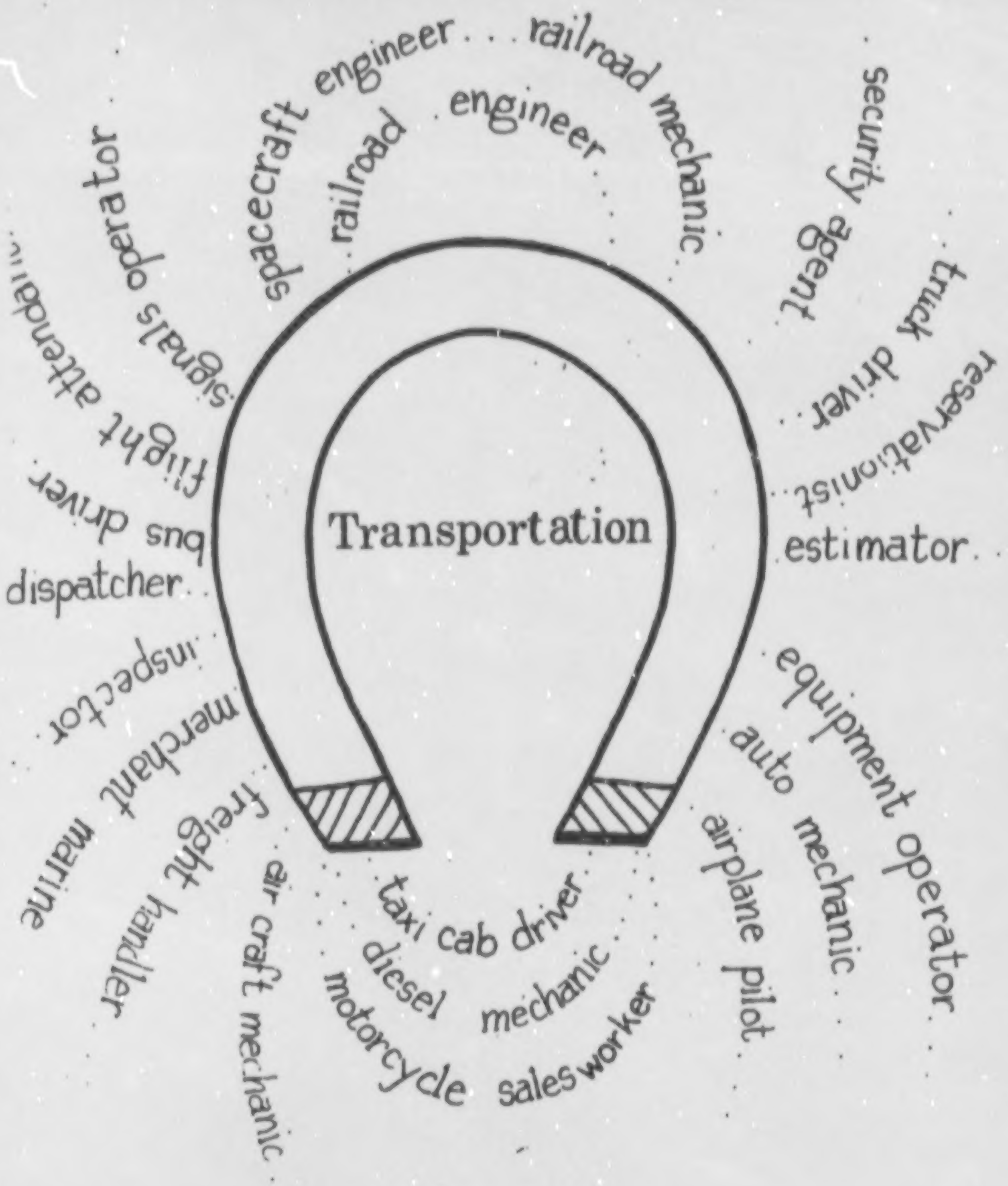
What are 3 of my on-the-job tasks and/or skills?

____

____

____

G 32-34


Transportation
spacecraft engineer
railroad mechanic
railroad engineer
security agent
truck driver
reservationist
estimator
equipment operator
auto mechanic
airplane pilot
motorcycle salesworker
diesel mechanic
taxi cab driver
air craft mechanic
freight handler
merchant marine
inspector
dispatcher
bus driver
flight attendant
signals operator

DIESEL MECHANIC:
An Interview at Logan's Diesel Garage

Trina: Hi. My name is Trina Parks from North Pass High School. I called last week to make an appointment with Paul Spratt, the service manager.

Paul: I'm Paul Spratt. Glad to meet you. I understand you want to learn about what diesel mechanics do at work. Is that right?

Trina: Yes. Everything there is to know.

Paul: Well, let's start at the beginning. Do you know how a diesel engine differs from a gasoline engine?

Trina: Well, I know that diesel engines take special fuel, which is thicker than gasoline, and that spark plugs aren't used to ignite the fuel in diesel engines. Instead, heat generated by air and fuel being compressed in the cylinders ignites the fuel.

Paul: Yes, well I see you already know the basics of diesel theory.

Trina: I did a little research before I came. Besides, I love to work on engines. I guess I'm especially curious about diesel engines because they get such good mileage. I figure that diesel engines will be used even on small cars soon enough, so a diesel mechanic will be able to find work at lots of places.

Paul: Yes, I think you're right, and smart to be thinking about the future. In fact, I've read that in some European countries, many passenger cars run on diesel engines. There are a lot of advantages to using diesel fuel. We figure 16 gallons of diesel fuel are used for every 40 gallons of gasoline on most of our big trucks. It's the best fuel for engines that idle for long periods of time. The only disadvantage I can think of is that it is harder to start up a diesel in the winter, since the fuel is so thick.

Trina: Besides trucks, what other types of vehicles or equipment use diesel fuel?

Paul: Now, in this garage, we only service trucks, but at other diesel service centers, you might see cranes, tractors, boats, locomotives, or oil drilling rigs. In fact, a diesel mechanic might find work at a diesel equipment distributor, a bus or railroad line, a construction or trucking company, a poser plant, a shipping firm, or even a mining or drilling company. Wherever big, heavy equipment uses fossil fuel, chances are diesel engines are doing the work.

Trina: Well, it sure sounds like a good field to go into. About this shop: when a truck is brought in for repairs, does one mechanic work on it, or do the mechanics here all work together?

Paul: It depends on how many things are wrong with a truck. Most of the mechanics here are really good at one area of repairs. Some specialize in front-end and brake work, and some on fuel injectors, pumps, and nozzles. Others are great in fixing rear-end and transmission problems. Two people here just do electrical work and tune-ups. Only one person besides myself is equally good at everything, but all the mechanics here are very good at what they do. Plus, they can all be counted on to cooperate with one another. These are the things that matter to me. I can trust them all to do their best work all the time, whether they are working alone or with others, whether or not someone is watching them.

rina: As I understand it, every mechanic's job includes 3 things:
1) routine maintenance work,
2) diagnosing problems (figuring out what's wrong), and
3) repairing and replacing parts.
Would you agree with this?

Paul: Yes. A good mechanic should be able to do all three of these things. All the mechanics here do maintenance work to prevent things from going wrong on the road. Drivers appreciate this service through they sometimes wait till it's too late.

rina: Do the drivers do most of the trouble-diagnosis themselves? Do they usually tell you what they think is wrong with their trucks?

Paul: Well, most drivers have an idea of what might be wrong with their vehicles. But as service manager, I take responsibility for what's done to each truck, so I give each truck a test drive, and look it over. I diagnose the problem, and I assign the work to the mechanic or mechanics who can do the best job. Of course, all mechanics do some diagnosis while they work. They're always on the lookout for unusual sights, noises, and smells. Sometimes a job may be bigger than I anticipated. I've really got to trust each mechanic to be alert and observant.

Trina: What other things do you look for in a mechanic?

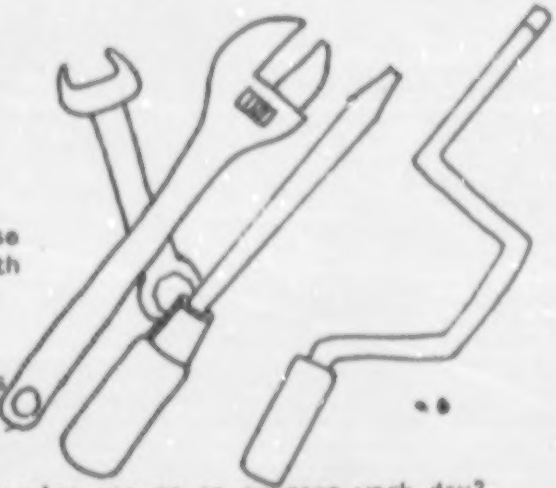
Paul: Well, a diesel mechanic must often lift as much as 100 pounds, so strength is important. Besides that, mechanics must be able to read micrometers and gauges, and must be able to figure out problems like how much fuel is going through a pump under a certain amount of pressure. A high school background in math and science really comes in handy. Of course, vocational school training and mechanical experience are just as important. Besides math and science, reading is another skill that comes in handy on this job. It's really important that mechanics know how to use manuals and read diagrams. But don't get me wrong, now. Reading isn't everything. I've fired mechanics who understood about engines described in books, but who, when faced with a real engine, just couldn't manage. I look for practical experience when hiring, and a desire to learn.

Trina: Would you hire someone straight out of high school?

Paul: Well, it depends. You see, nowadays, technical schools and some community colleges offer good 2-year programs including courses in hydraulics, welding, blueprint reading, and actual repair. I think you can see why I'd like to hire someone with that kind of experience. But I'd consider someone who'd be willing to spend 2 years as an apprentice here. An apprentice is trained on the job and gets paid less than the other mechanics while learning the trade.

Trina: You know, one thing I've noticed is that all the hand tools around here look new. Do you supply your mechanics with new tools once in a while?

Paul: No, no. But each set of hand tools you see belongs to a mechanic. These mechanics each own about $1,000 worth of tools, which they've bought over the years. That's quite an investment, so they take care of their tools, and keep them clean. Besides that, grease or dirt in the wrong place could wreck a mechanical job.

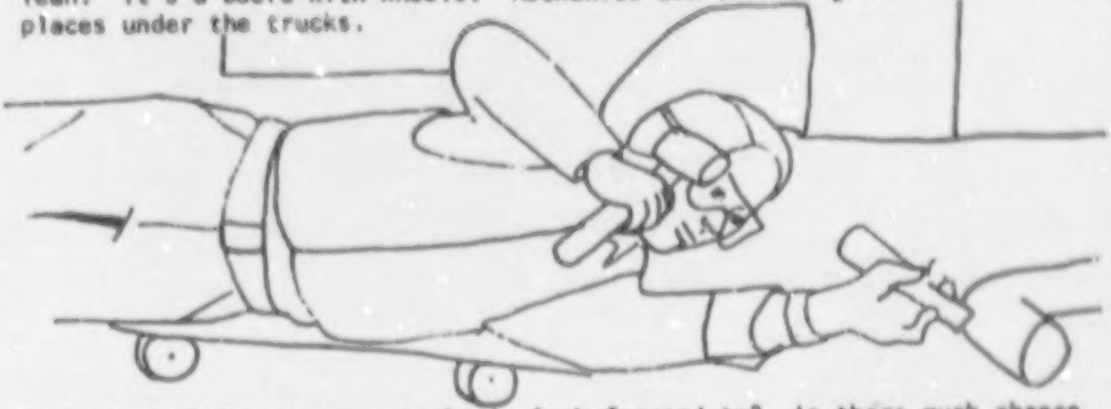


Trina: What tools and equipment do the mechanics use on an average work day?

Paul: Well, a mechanic's hand tools include pliers, screwdrivers, ratchet, box, and open-ended wrenches, surface and pressure gauges, feelers, and even micromete which measure up to .0001 of an inch. The equipment that belongs to the shop includes a valve grinding or refacing machine, a pin fitting machine, an electronic engine tester called a dynamometer, hydraulic lifts, and jacks, welding equipment and safety goggles, powered hoists and cranes for lifting and moving heavy parts, and of course, each mechanic has a creeper.

Trina: A creeper?

Paul: Yeah. It's a board with wheels. Mechanics use them to get to hard-to-reach places under the trucks.

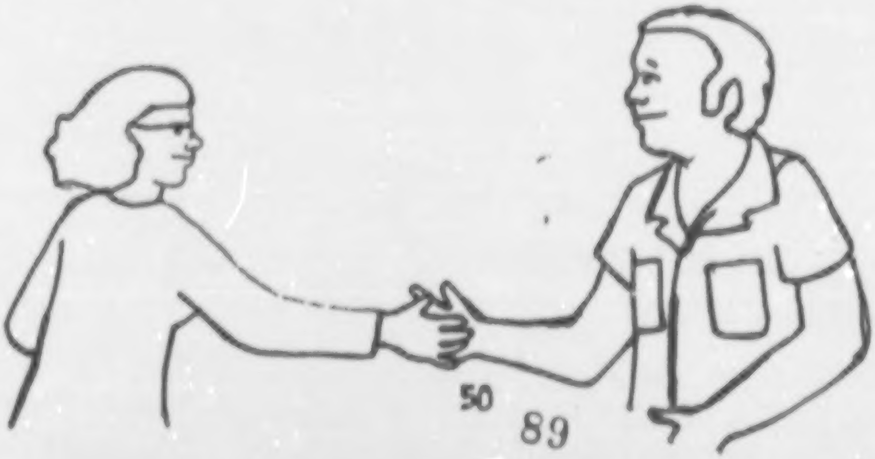


Trina: What kind of future can a mechanic look forward to? Is there much chance for advancement?

Paul: Well, a conscientious mechanic who takes a real interest in learning about all aspects of repair can become a service manager like me, or even a shop supervisor after gaining plenty of shop experience and know-how. There are plenty of opportunities to learn out of the shop, too. For instance engine manufacturers offer special training classes to teach newfangled techniques, and to teach mechanics about the new designs and equipment. I go to these training sessions myself when I can.

Trina: Hmm. I certainly have learned a lot here. I think I'll start lifting weights so that I'll meet the strength requirement. I'm really interested in this type of work. At home, I've been working on the family car, but soon I hope to get some diesel experience.

Paul: Well, give me a call when you get some more schooling and experience under your belt. If you're willing to work hard, you may have a job!



Quiz Yourself

DIESEL MECHANIC
Fill in all blanks. Check all answers.

I. What are 3 skills every Diesel Mechanic must practice on the job?

1.____________________

2.____________________

3.____________________

II. Name 2 hand tools and 1 shop tool used by a Diesel Mechanic on the job. What is each used for?

HAND TOOLS	USES
1.__________	1.__________
2.__________	2.__________
3.__________	3.__________

SHOP TOOLS	USES
1.__________	__________

III. Besides on-the-job garage training, where can someone be trained to become a Diesel Mechanic?

1.____________________

IV. Name 2 places you might find Diesel Mechanics at work.

1.____________________

2.____________________

V. How do Diesel Mechanics use math and reading skills on the job?

MATH:____________________

READING:____________________

TAXICAB DRIVER

Fares
45¢ a mile

JOB DESCRIPTION: Offer individualized transportation service to people in urban (city) and rural(country) areas. That means that taxicab drivers take people WHERE they want to go, WHEN they want to go there.

"Cabbies" may work a day or night shift. Drivers who own their own cabs make their own hours, and earn as much money as they collect during a working day. Most drivers work for a company, and earn 40-50% of each day's fares, PLUS tips.

ON-THE-JOB TASKS AND SKILLS:

1) Receives call from dispatcher on 2-way radio, or on a phone at a taxi stand. (The dispatcher receives phone calls from passengers and lets drivers know where people are waiting).

2) Picks up passengers and takes them to their destinations for a charge (called a "fare"). Fares are based on distance traveled, and sometimes, in heavy traffic, the time it takes to get somewhere.

3) Helps people carry luggage.

4) Makes change.

5) Keeps accurate records of each day's work, including the time and place of each pick-up and arrival, and all fares collected.

6) May provide sightseeing tours of a neighborhood, so driver should be very familiar with neighborhoods worked in.

7) Must be courteous to passengers, and be a skilled and coordinated driver under pressure.

WORK PLACES:

1) In cab: on the road, at taxi stands, in front of busy places like hotels, airports, and bus and train stations.

2) A good living can be made in urban areas. In rural areas, cab driving is a good source of supplemental (part-time or extra) income.

TOOLS AND EQUIPMENT:

1) Cab (supplied by a cab company, or owned by driver).

2) Two-way radio used to take calls from dispatching office, and to call in one's destination.

3) Record sheets or log book to record all trips and prices, and in rural areas, to check the prices of trips.

4) Taximeter (always in urban areas, sometimes not used in rural areas) which measures the distance traveled in fractions of a mile, or the amount of fare, based on the distance traveled.

5) Cash box.

TRAINING REQUIREMENTS:

1) Because of insurance rates, drivers must be 21 years old.

2) A good driving record, with no convictions.

3) A chauffeur's driving license. Besides this, taxi drivers must often take a separate written test which includes questions about accident reports, traffic and insurance regulations, and even street locations.

WAYS THAT READING, WRITING, AND MATH ARE USED ON THE JOB:

1) Reading is necessary to pass chauffeur's license tests and any other tests required by law, or by the cab company.

2) Drivers must be able to read street signs, and must read maps when getting to know an area.

3) Since taxicab drivers, or "cabbies," keep records of all their trips, it's important that they can write neatly.

4) Cabbies use math skills to make accurate change, and to keep records of daily fares.

CHANCES FOR ADVANCEMENT:

1) Drivers may become dispatchers, or may decide to buy their own cabs.

2) Experienced drivers with a background in business math or administration may decide to start a cab company.

Quiz Yourself

TAXICAB DRIVER
Fill in all blanks. Check all your answers.

I. What are 3 tasks a Taxicab Driver performs during a working day?

1.____

2.____

3.____

II. Name 2 busy places where cabs can be found waiting for riders.

1.____

2.____

III. What are 3 tools or pieces of equipment used by Taxicab Drivers? What are they each used for?

TOOLS	USES
1.________________	1.____________________
2.________________	2.____________________
3.________________	3.____________________

IV. What is 1 way to prepare or train for a job as a Taxicab Driver?

1.____

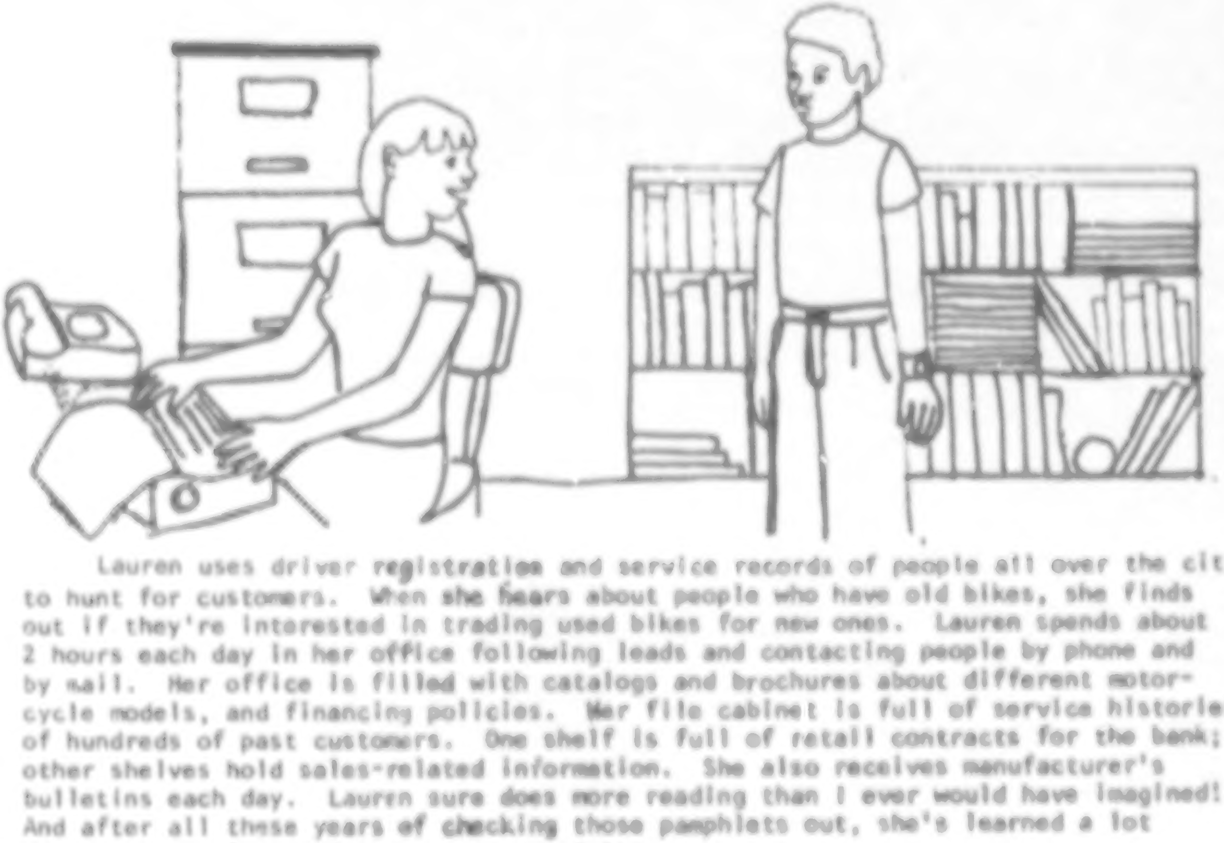
V. How can reading and math skills come in handy on the job?

READING:___________________________________

MATH:______________________________________

SELLET'S SALES

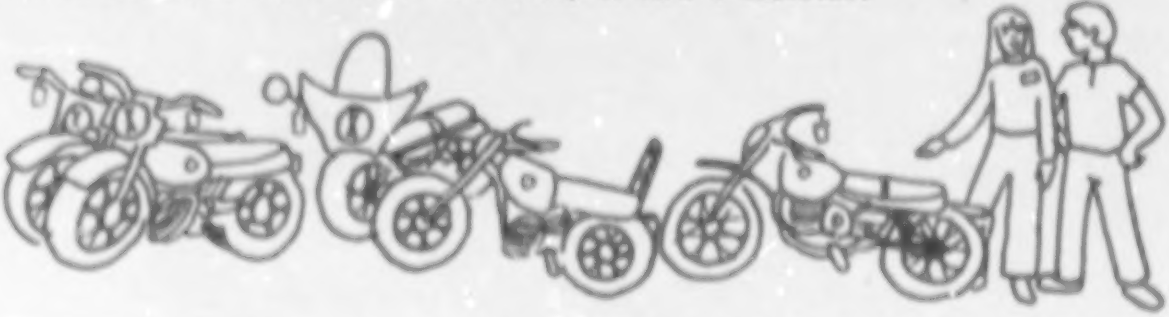
My name is Jordan Moore, and last week, I did some "shadowing" at Sellet's Wheels. Sellet's is a retail motorcycle shop. For years, I've been going in there after school with my buddies just to look at the new bikes, so I guess I thought I already knew everything there was to know about the place. But I was wrong. My first surprise was in finding out that Lauren Trull, who I always thought was a secretary, is actually the top salesworker in the store. So I was assigned to follow and observe Lauren as her "shadow." I guess the reason I always thought she was a secretary was that every time I saw her, she was in an office at a telephone or a typewriter. Well, when I walked in to do my "shadowing" last Thursday, that's where she was again. And now, I understand why. You see, a good retail motorcycle salesworker does more than talk to customers in the showroom.



Lauren uses driver registration and service records of people all over the city to hunt for customers. When she hears about people who have old bikes, she finds out if they're interested in trading used bikes for new ones. Lauren spends about 2 hours each day in her office following leads and contacting people by phone and by mail. Her office is filled with catalogs and brochures about different motorcycle models, and financing policies. Her file cabinet is full of service histories of hundreds of past customers. One shelf is full of retail contracts for the bank; other shelves hold sales-related information. She also receives manufacturer's bulletins each day. Lauren sure does more reading than I ever would have imagined! And after all these years of checking those pamphlets out, she's learned a lot about motorcycles, and money management too.

In the winter, which is a slow season for motorcycle sales, some salesworkers are laid off, but Lauren's office work really pays off all year round. She has more customers than anyone else, and she keeps busy, plugging away at customer contact. Besides her hard work on the job, her motorcycle riding experience comes in handy when selling bikes. She knows what people are looking for and can describe the bikes in terms that riders understand.

Late in the morning, Lauren had an appointment with someone who was interested in buying a bike. I guess I expected her to try to sell this guy the biggest, most expensive bike in the place, right away, but that wasn't how it happened at all. In fact, it seemed to me that Lauren did as much listening as she did talking. First she asked the man who wanted to buy the bike a lot of questions like what was the bike going to be used for, how often would he be riding it, and how much did he want to pay. Lauren got him talking, and showed him 3 different models within his price range. Then, she gave him brochures describing the important features of each model, and told him not to rush, but to contact her when he wanted to talk more or felt ready to make a decision.



"You sure don't push people, do you?" I asked later.

"Most people want to make good decisions, and want to take lots of things into consideration before spending more than $1,000. My job is to help people figure out what would be best for them, and then to sell them that model. I don't want to talk people into spending more money than they want to. I want to be a resource person, and I want to have satisfied customers who feel they can trust me, and who will come back to do business here again and again. I think my attitude about sales is what makes me a successful salesworker."

Well, I thought about that one awhile. I guess I'd never thought of salesworkers as resources before.

During lunch, I took a few minutes to watch Dan Voorhis, a junior salesworker at Sellet's who was working on the sales floor trying to sell a bike to a young couple. He asked his customers the same kinds of questions that Lauren had asked. I also noticed that being friendly and polite, and speaking clearly are other things that he and Lauren had in common. I asked Dan how important he thought these qualities are.

"Soon after I got this job, I took a course in public speaking. You're right. It is really important how one talks to people. That public speaking course has really helped with my sales."

Then, I asked him what a high school student could do to prepare for a career in motorcycle or automotive sales.

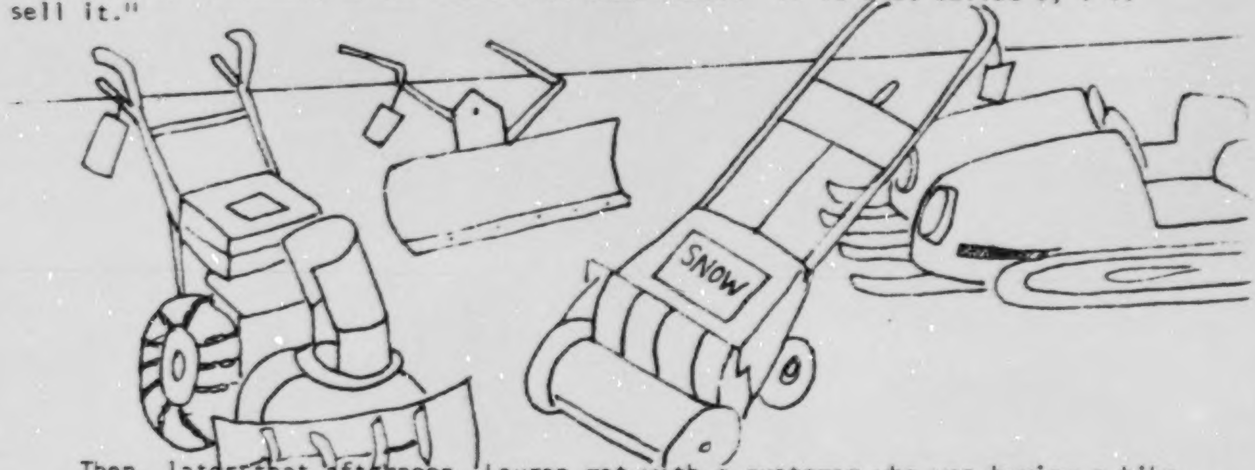
"Sell anything, and get used to talking to people," he replied. "It's also important that you dress properly. Besides that, mechanical experience is helpful, and it's important that a motorcycle salesworker rides a bike."

"What about finance papers and contracts?" I asked. "How would I prepare for that stuff?"

."Well, if you've got the personality for sales, an employer might hire you, and you could learn many skills on the job. But if you want to prepare for understanding contracts, good reading skills are important. Business math helps salesworkers with the finance and insurance forms that go along with every sale. Hmm. Besides a willingness to work hard, though, personality is still the *most* important part of sales. That means being polite, and knowing what appeals to your customers. And that includes dressing right."

"Well, you've certainly given me an idea of the types of things I can work on now," I said. To myself, I thought, "There sure is more to sales than meets the eye."

"Oh, before you go," Dan added, "another thing that really helps me out is the fact that I'm versatile. When the winter comes, for instance, I shift gears and sell snowmobiles, snowblowers, and other equipment. I'm willing to improve myself, and I'll learn about all the products we sell. I don't care whether it's a bike, a snow blower, or an industrial lawn mower. If it's at Sellet's, I'll sell it."



Then, later that afternoon, Lauren met with a customer who was buying a bike. At Sellet's making a sale is called "closing" a sale. We all went into the office and Lauren explained all about insurance rates and even about special loans and financing policies to her customer. Then, she prepared some order forms and explained the warranty. The customer, Ms. Fells, read over the papers carefully, signed them, and the sale was closed. Lauren promised to deliver the bike herself when it came into Sellet's from the manufacturer.

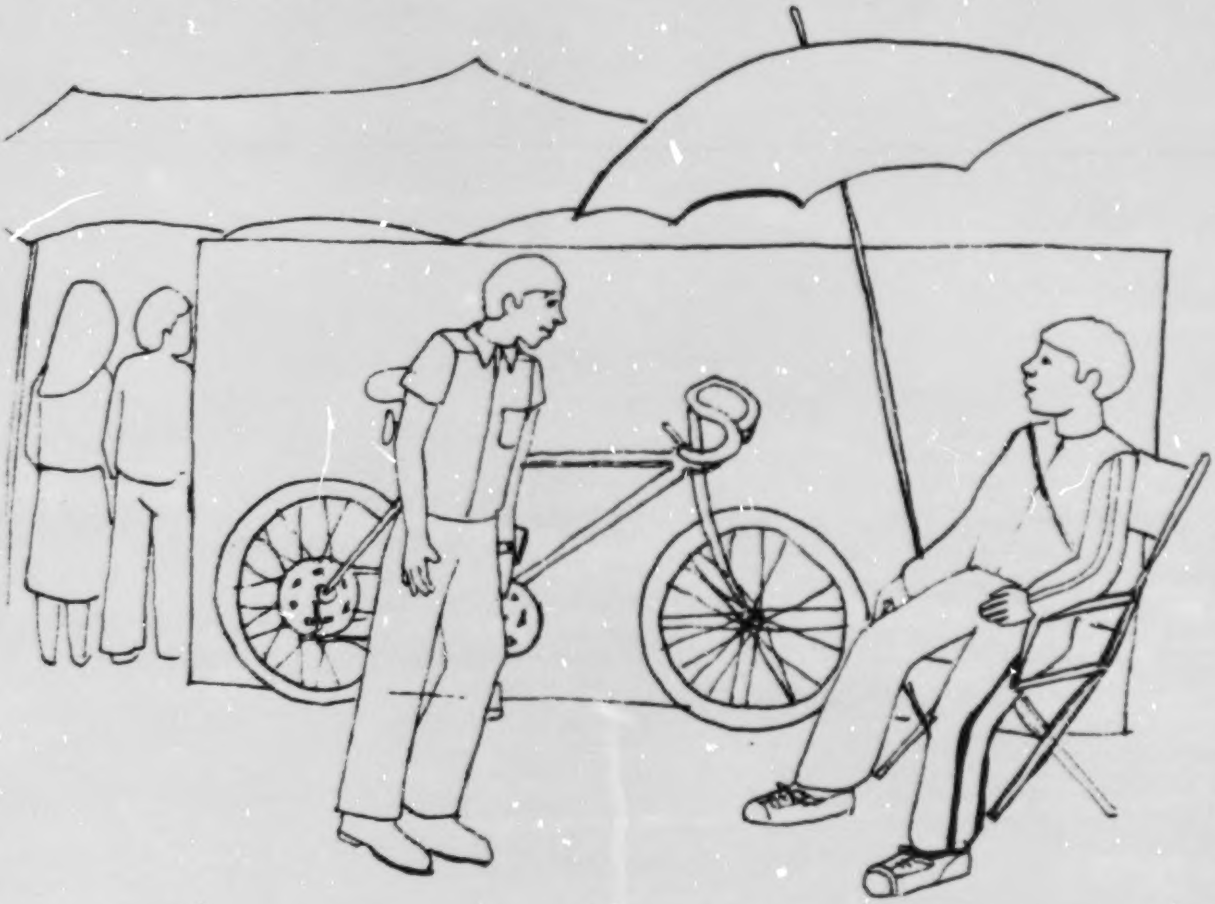
I felt pretty good about my day at Sellet's Wheels, and I thought I'd seen everything, till Lauren took a customer out on a test drive. That made me think about the different types of things Lauren might do on an average day. I asked her about it when she came back.

"Well, I must admit, you caught me on a very busy day. Weeks go by when I don't leave the shop. But there are real benefits to this sort of work. For instance, the conditions in a show room are great. It's always clean, comfortable, and there's plenty of light, and I have my own place to work in. These things are important to me. Besides all that, I get paid vacations, a life insurance policy, and a good medical and hospital plan too. On the other hand, it's taken me a while to develop the sales techniques which make me secure in my position here. And I'm still learning. I attend training programs offered by motorcycle manufacturers when I can because I want to know as much as possible about the products I sell. You see, I also really value adding to my skills and the information at my fingertips."

"So it wasn't always easy for you, but little by little you've become a successful salesworker?"

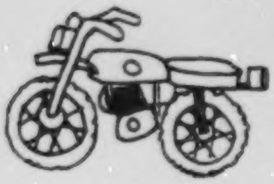
"That's right. Take Dan, for instance. He does well because he's willing to improve himself. I was a junior salesworker for 2 years before I worked my way up to a more secure position. And in the beginning, it's tough. You see, we earn small salaries, and really depend on our commissions, which are percentages of the sales we make. Until we build up our clienteles, or groups of customers, we may not be taking home much money at the end of every week. But as for me, after 2 years, I had enough customers so that I felt established here. And yes, the different things I do during each day make my work here interesting, and help the working day go quickly."

So I learned a lot at Sellet's. In fact, I even got inspired to find out if I have what it takes to be a success in sales. This Saturday I'm bringing my 5-speed bicycle to the town flea market. Hmm. And I think my jogging outfit will appeal to the athletic crowd.



Quiz Yourself

RETAIL MOTORCYCLE SALESWORKER
Fill in all blanks. Check all answers.

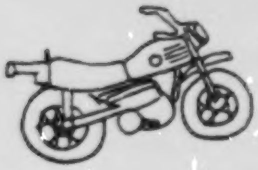


I. Name 3 tasks Lauren Trull performs on the job.

1.____

2.____

3.____



II. Name 3 tools or pieces of equipment Lauren uses on the job. How is each used?

TOOLS	USES
1.____________________	1.____________________
2.____________________	2.____________________
3.____________________	3.____________________

III. Where does Lauren do her work?

1.____

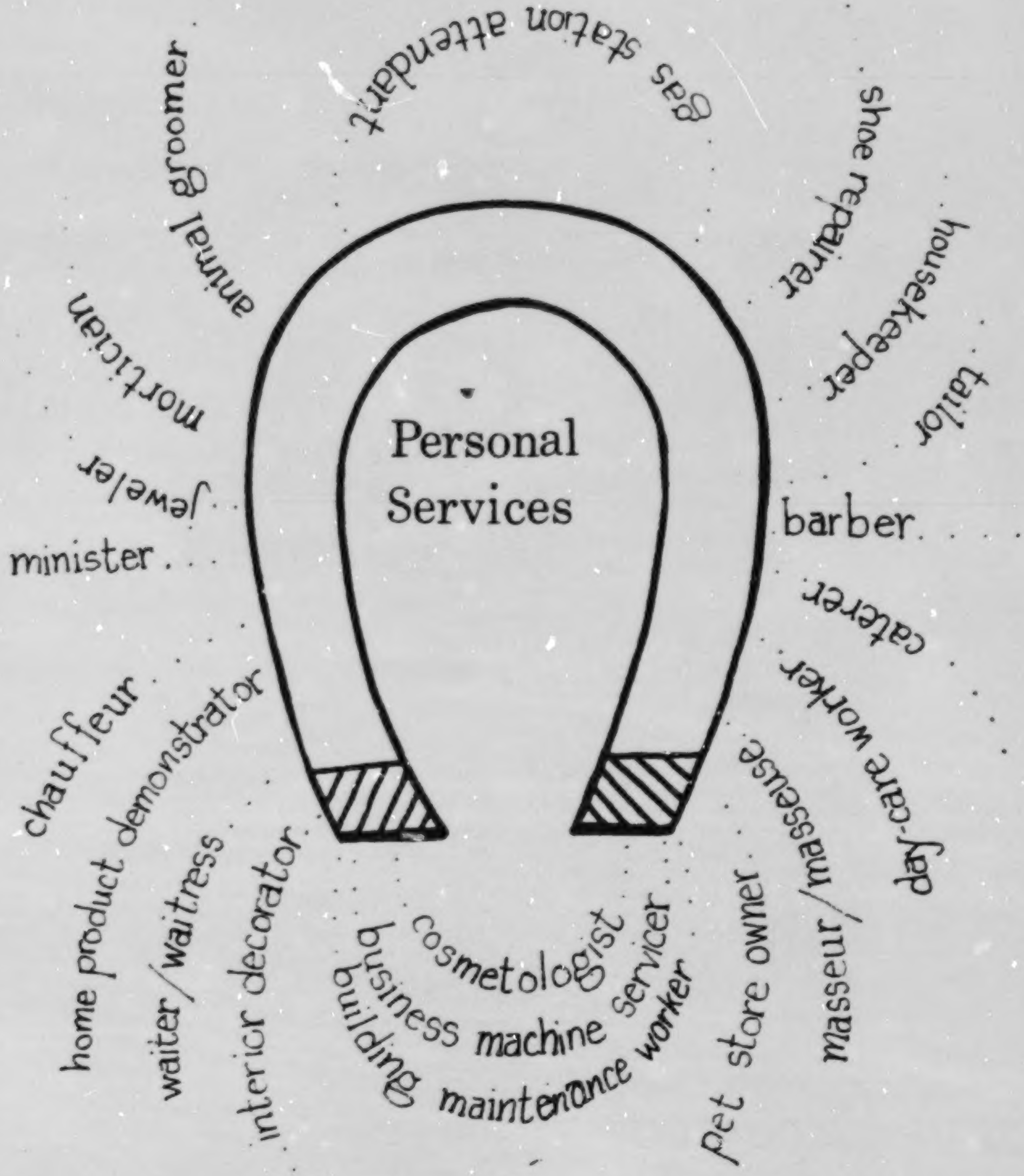
IV. What should someone do to prepare for a career as a Motorcycle Salesworker?

1.____

V. How do Motorcycle Salesworkers use math and reading skills on the job?

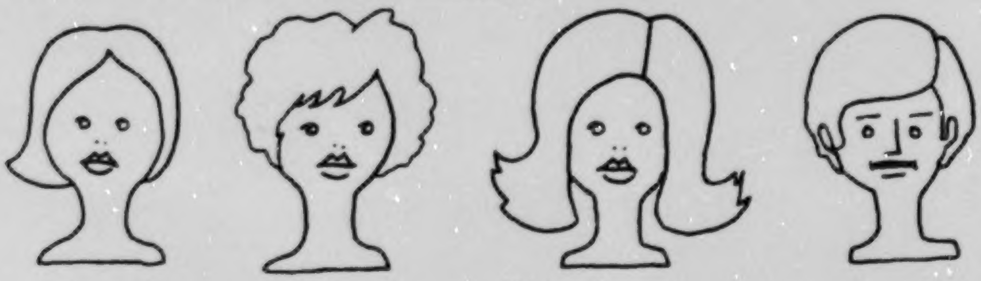
MATH:____

READING:_______________________________________


Personal Services
gas station attendant
shoe repairer
housekeeper
tailor
barber
caterer
day-care worker
masseur/masseuse
pet store owner
cosmetologist
business machine servicer
building maintenance worker
interior decorator
waiter/waitress
home product demonstrator
chauffeur
minister
jeweler
mortician
animal groomer

BEAUTY IS HER BUSINESS

My name is Georgia Rose Williams, and beauty is my business. The title of my profession is "cosmetologist." You've probably heard of titles like "beautician," "beauty parlor operator," "hair cutter," "hair stylist," "hairdresser," or even "coiffeur." Well, by any name, a cosmetologist's work is to care for and treat people's hair (including wigs), skin, and nails. The people who ask and pay for these services are called "customers."



My work takes plenty of skill and lots of different kinds of tools. For just about all of my work, I need plenty of towels and capes made of cloth or plastic to protect my customers' clothing from hair clippings, water, soap, or chemicals. I use shampoos and conditioners to wash and rinse hair. I use scissors, razors, and clippers to cut hair. When I style hair, I use even more tools: hair rollers, clippies, curling irons, hair driers, brushes, special combs, and setting lotions. I may also use special chemical preparations to straighten and wave hair permanently. I may use rinses, dyes, or bleaches to lighten or darken it--whatever customers want done to their hair, I can do it. And with tweezers and dyes, I can also shape and tint eyelashes one by one, if a customer asks. And I do eye tabbing too--that's putting eyelashes on, one by one. I need special glue for that.

Then, there's skin and nails. I use creams and lotions to give facial treatments. To manicure fingernails, I use a bowl of soapy water to soften the cuticles around the nails, orange sticks or cuticle pushers to push the cuticles away from the nail, nippers to cut nails, emery boards to smooth the cut edges, and nail polish to protect and/or color the nails. To give a pedicure, I do the same things, except to toenails--whatever my customer wants.

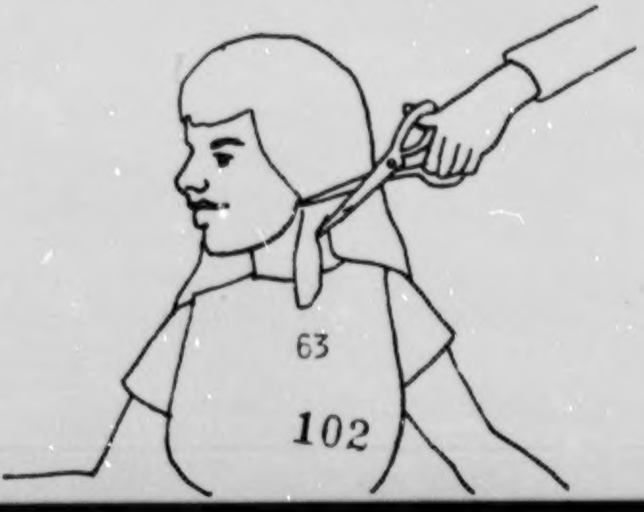
For all my work, I need good finger dexterity and good physical health. I have to stand on my feet for long periods of time--sometimes all day. It's a good thing I don't have allergies--the chemicals cosmetologists use can irritate some people's skin. I also need to be a sort of artist. And maybe most important of all, I have to be able to follow my customers' instructions. You see, customer satisfaction is a major part of my work.

I've been cutting hair since I was about 10 years old. My kid brother and I were making mud pies one day, and I decided to make a fancy mud pie on his head. But his hair looked too long to me, so I got the scissors from inside the house, gave him a haircut, and gave him a fancy mud pie hair-do. I thought he looked beautiful. I felt so proud! Well, I showed him to my mother, and she was horrified at that huge pile of mud on his head. She scolded me for it, and washed his hair, but after she cleaned him up, she noticed his haircut. I expected her to be upset about that too, but although she was surprised, she liked it a lot, and asked me to cut her hair too. And that's how I got started cutting hair. After a while, I was cutting my friends' hair too. I had the talent for sure.

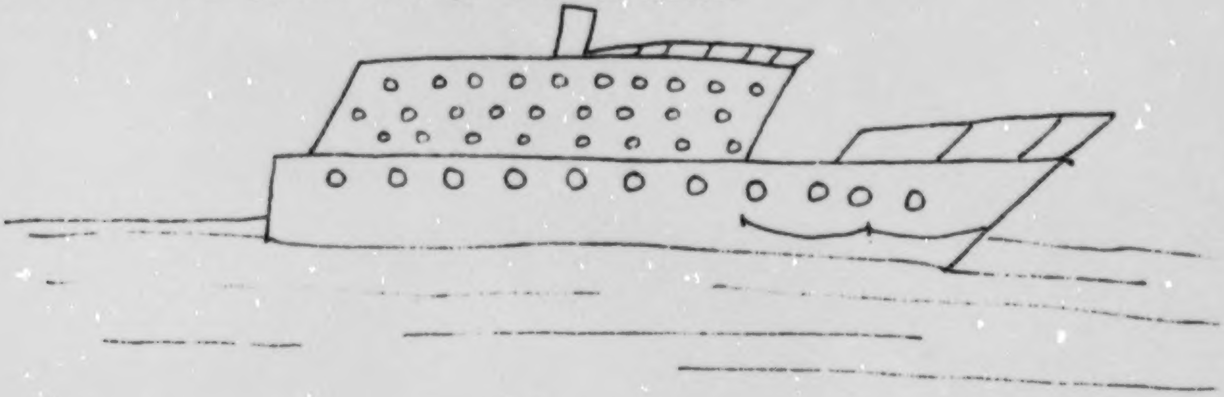
In New York, where I got my license, I had to finish 8th grade, and be at least 16 years old before I could go to cosmetology school (in some states, the law says 10th grade). So even though I didn't like school much, I stayed till I passed 8th grade just so I could become a cosmetologist. It wasn't till many years later, when I decided to go into business for myself that I needed the business math skills I could have learned in high school. When those skills were important to me, I went back to school to learn what I needed to know.

Formal training is very important in my profession. Training requirements are not the same in all states, but all states do require training before issuing licenses. New York requires 1,000 hours of training. It took me 7 months, full time at the American Cosmetology School, to complete my basic training. To pay for all of this, I took out a loan as soon as I was of legal age. I could have worked while going to cosmetology school, but it would have taken me up to 2 years to complete my work at a vocational school. The courses included in the training programs are hygiene; sanitation; basic cosmetic chemistry; care of hands, skin, hair, and scalp; safety practices; hair cutting and styling; permanent waving; hair straightening; finger waving; pressing theory; and lots more.

For the first 500 hours, cosmetology students practice what they learn on mannequins and on each other. It's not until students pass the first 500 hours of training that they're allowed to work on customers, who come to the school because of the low prices charged for services. I really enjoyed my training because I knew I was learning about and preparing myself to make money at what I already loved doing.



When I finished my training, I passed the state exam, and got my license from the State Cosmetology Board. There are lots of places cosmetologists can work: for large and small commercial shops, in department stores, on government bases, on board cruise ships, in hospitals and other institutions, in hotels, even in large city drug stores. The first shop I worked in was a department store. This was one of a whole chain of shops owned by the same person, Ron Wells. He was an expert at hair cutting and styling, and he taught me what he knew about it. Soon I was a specialist at it, and I had a lot of regular customers, who always asked for me. Ron saw that I was good for his business, so he offered me a job at a very exciting shop, on a cruise ship! I was sure glad to take that job...I'd always wanted to travel.



Within 2 years, I had paid off my loan, and like I said before, I decided to go back to school to learn the business skills I'd need in order to run a business of my own. While I went to school, I worked part-time (evenings and Saturdays).

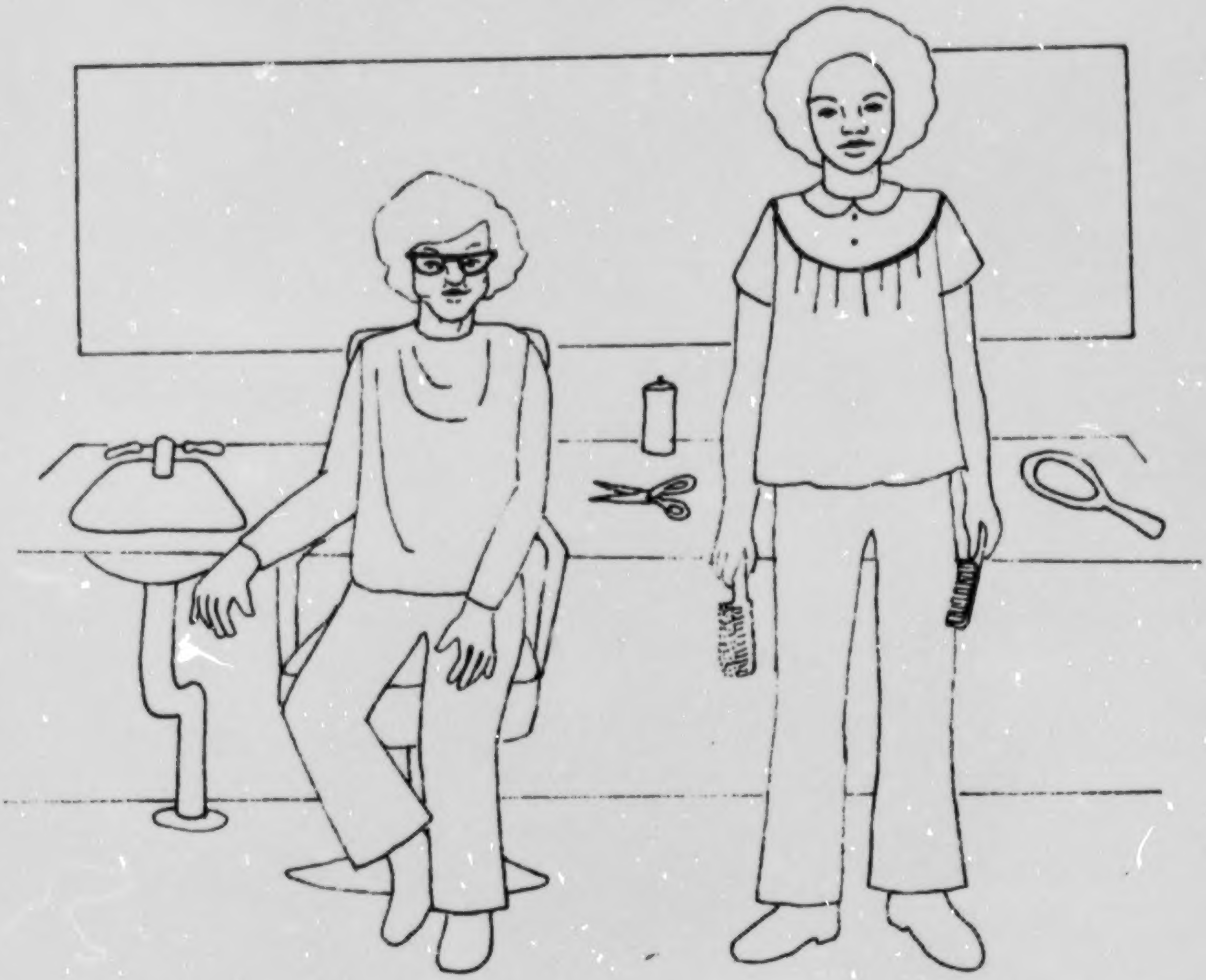
Now that I own my own shop, I'm also a business woman and have what's called "managerial duties." That means I hire, train, and supervise the cosmetologists who work for me. Since my specialty is hair cutting and styling, that's what I train some of my employees to do. I have other specialists working for me too: a bleaching and dyeing specialist, and a permanent waving and hair straightening specialist. So cosmetologists who are just getting out of school can get advanced training at my shop in any one of these three areas. Till they complete the training I offer, they give shampoos and manicures, answer the phone, make appointments, and collect fees from customers.

My other managerial duties include keeping records and ordering supplies, so I use my math skills a lot--making up payrolls, paying bills, and keeping information on hair color formulas. When I mix the chemicals for a hair color, I have to measure accurately. It's important that customers get the hair color they ask for.

I use my reading skills too. I have to read instructions in order to mix up hair color formulas--that includes the records I keep of my own formulas too. Also, I read the magazines of my profession. It's important to

keep up with the new styles that are always coming along. Just looking at pictures is not enough, though. I have to read about how to make my customers' hair look just like the hair in the pictures. Another way I keep up with changing styles and learn the techniques of creating them is by traveling to cosmetology training conventions.

There's always something new to learn in the field of cosmetology: new styles, new techniques, new theories, new people, new places. For me, that's the beauty of it...and beauty is my business.



Quiz Yourself

COSMETOLOGIST
Fill in all blanks. Check all answers.

I. Write in 3 skills or tasks Georgia performs on the job.

1. ____________________
2. ____________________
3. ____________________

II. Write in the names of 3 tools or pieces of equipment that Georgia uses on the job. Next to the names, write down what they are used for.

TOOLS	USES
1. ________	1. ________
2. ________	2. ________
3. ________	3. ________

III. **Write** in 2 places where **Georgia** has worked.

1. ____________________
2. ____________________

IV. Write in 2 places where Georgia got training for her profession.

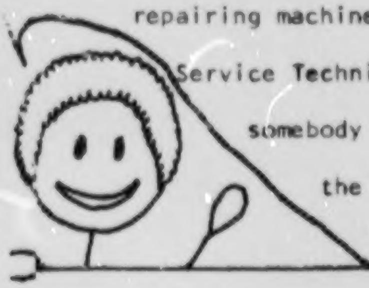
1. ____________________
2. ____________________

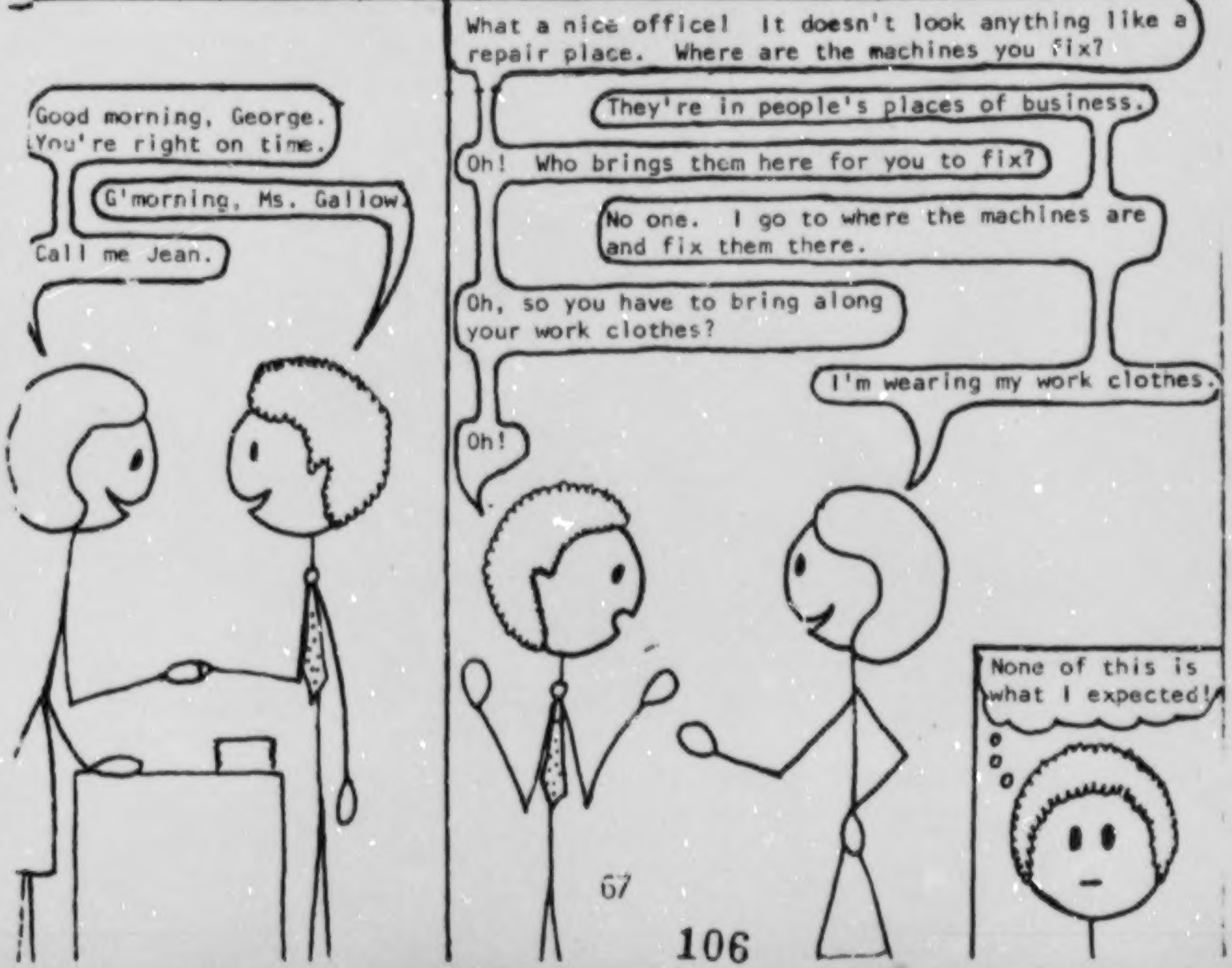
V. Write in 2 math skills and 1 reading skill that is important for Georgia's work.

1. ____________________
2. ____________________
3. ____________________

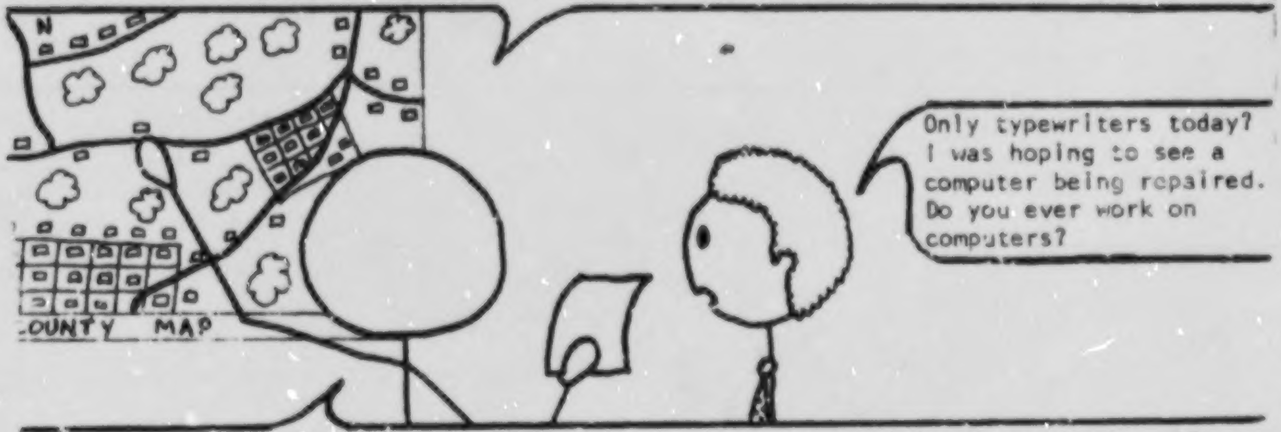
Business Machine Service Technician

Hi. I'm George Lane. For as long as I can remember, I've been great at fixing broken machines, including toasters, clocks, record players, and radios for my friends and family members. In the Work Study Program at my high school I wanted to start right in repairing machines. But my first assignment was to shadow a Business Machine Service Technician named Jean Gallow. I thought I'd be bored just watching somebody else at work. And as I approached Jean Gallow's office in the IOM (International Office Machines) building, the last thing I was expecting was excitement. Here's what happened.

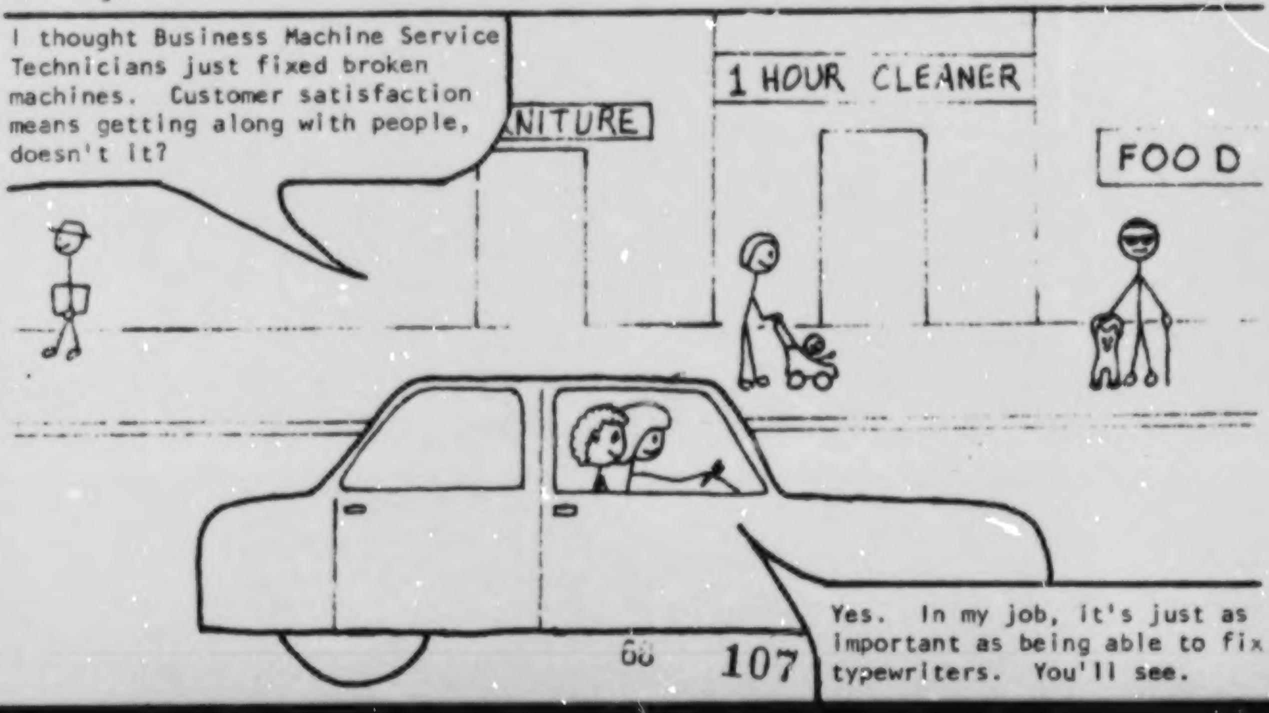


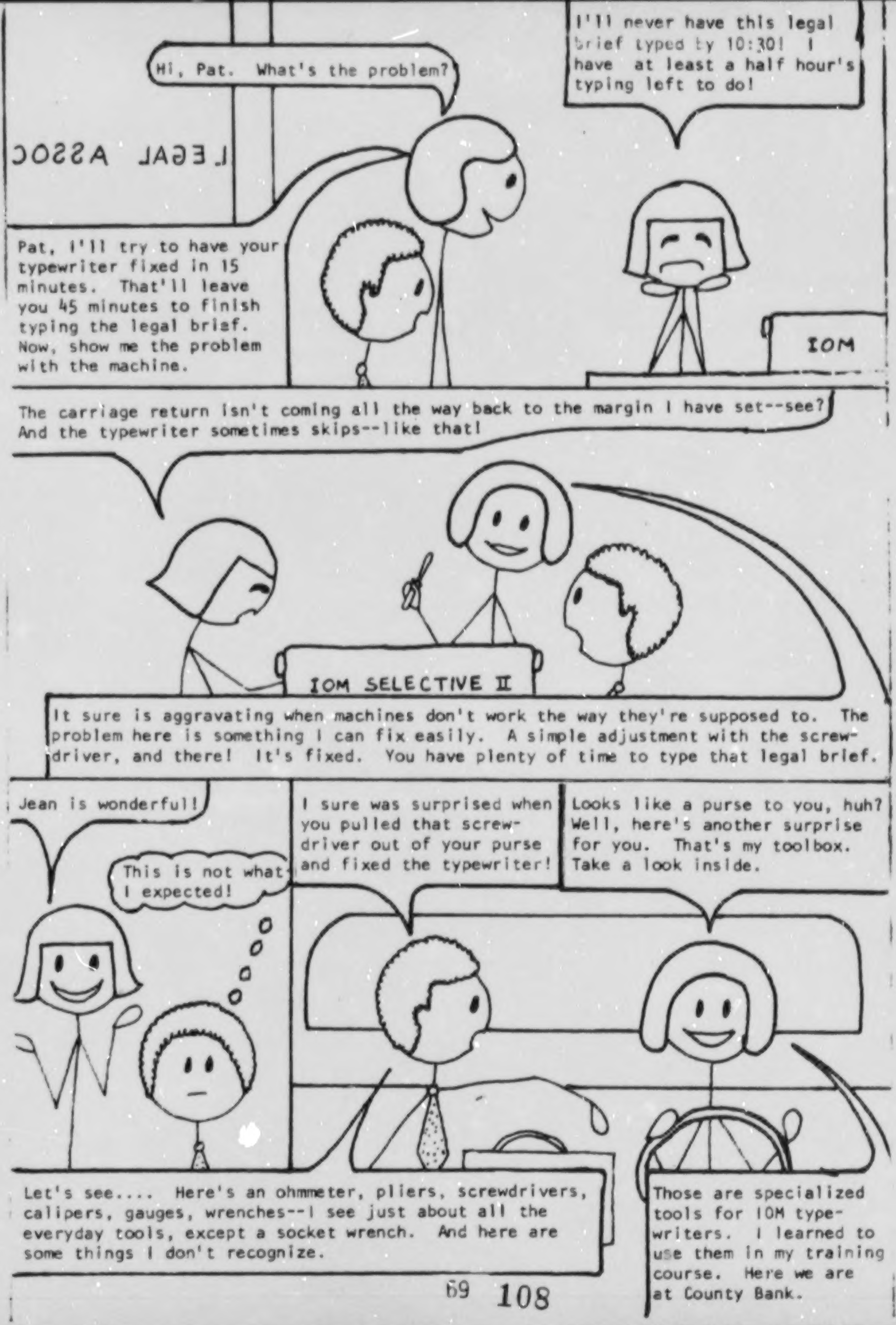

Good morning, George. You're right on time.
G'morning, Ms. Gallow.
Call me Jean.
What a nice office! It doesn't look anything like a repair place. Where are the machines you fix?
They're in people's places of business.
Oh! Who brings them here for you to fix?
No one. I go to where the machines are and fix them there.
Oh, so you have to bring along your work clothes?
I'm wearing my work clothes.
Oh!
None of this is what I expected!

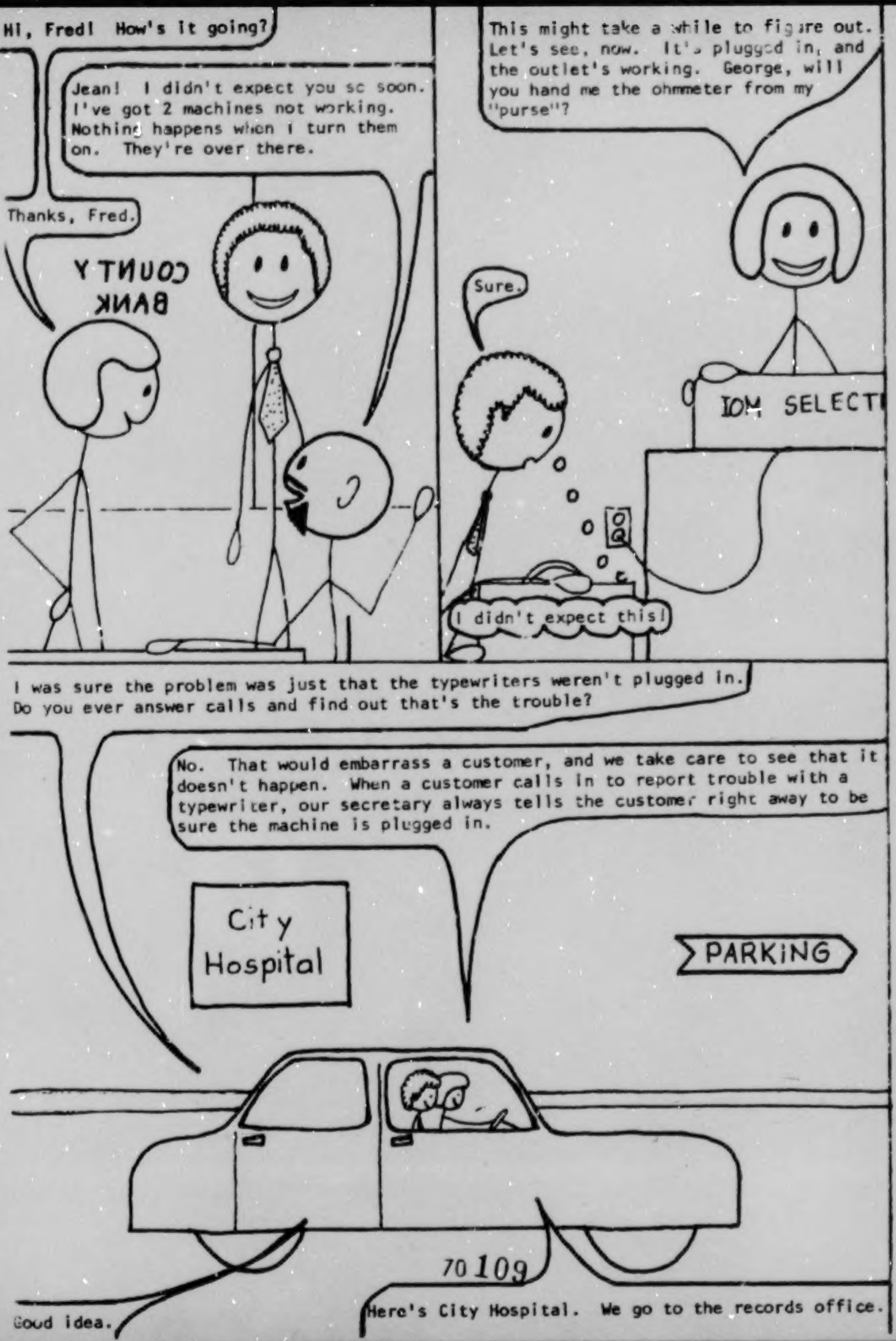
Before you got here I was looking over the list of people who called yesterday afternoon needing repairs. Legal Associates reported trouble with one typewriter. County Bank reported 2 typewriters not working at all. City Hospital has a problem with one typewriter, and Community College has one typewriter out of commission.

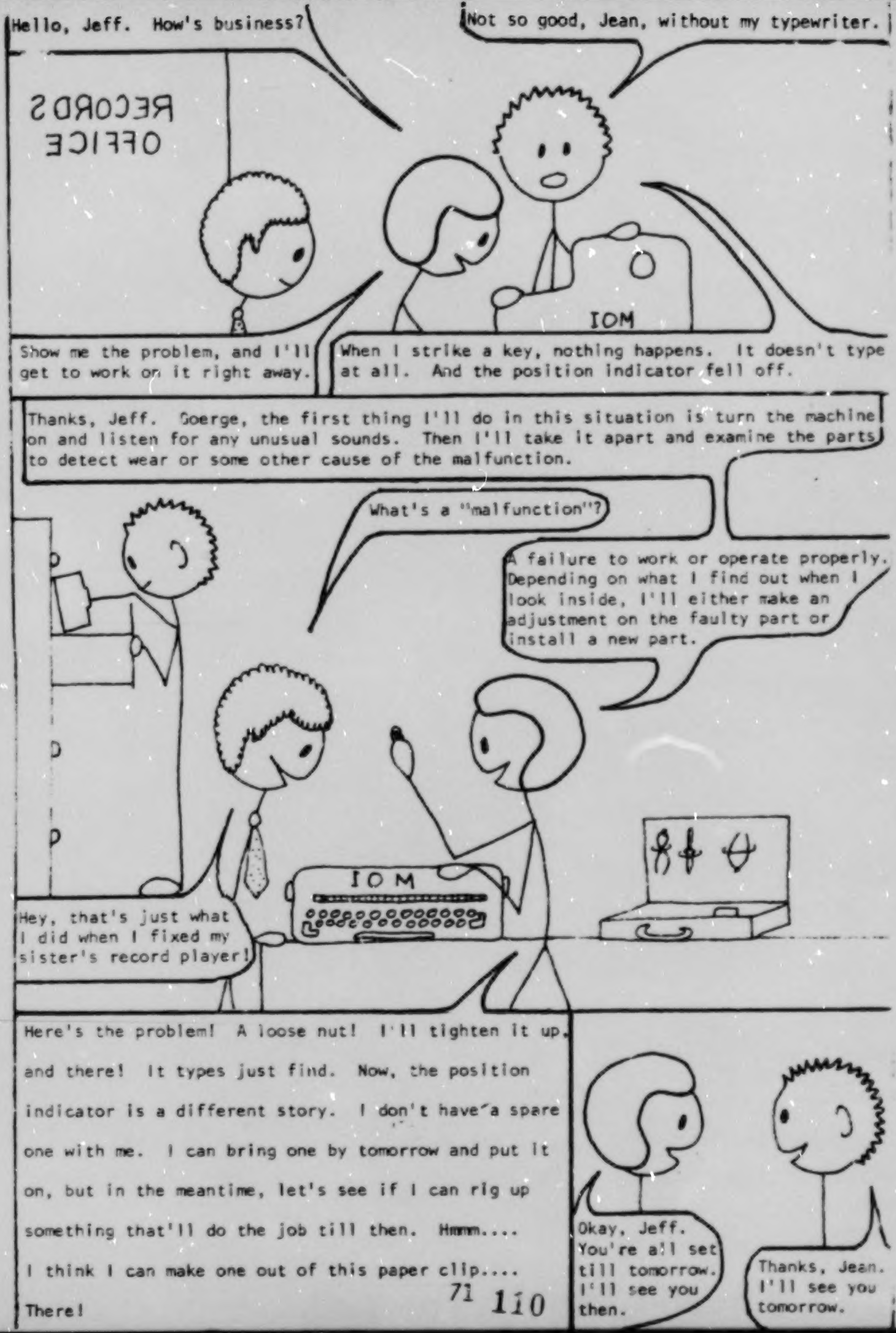

N
COUNTY MAP
Only typewriters today? I was hoping to see a computer being repaired. Do you ever work on computers?

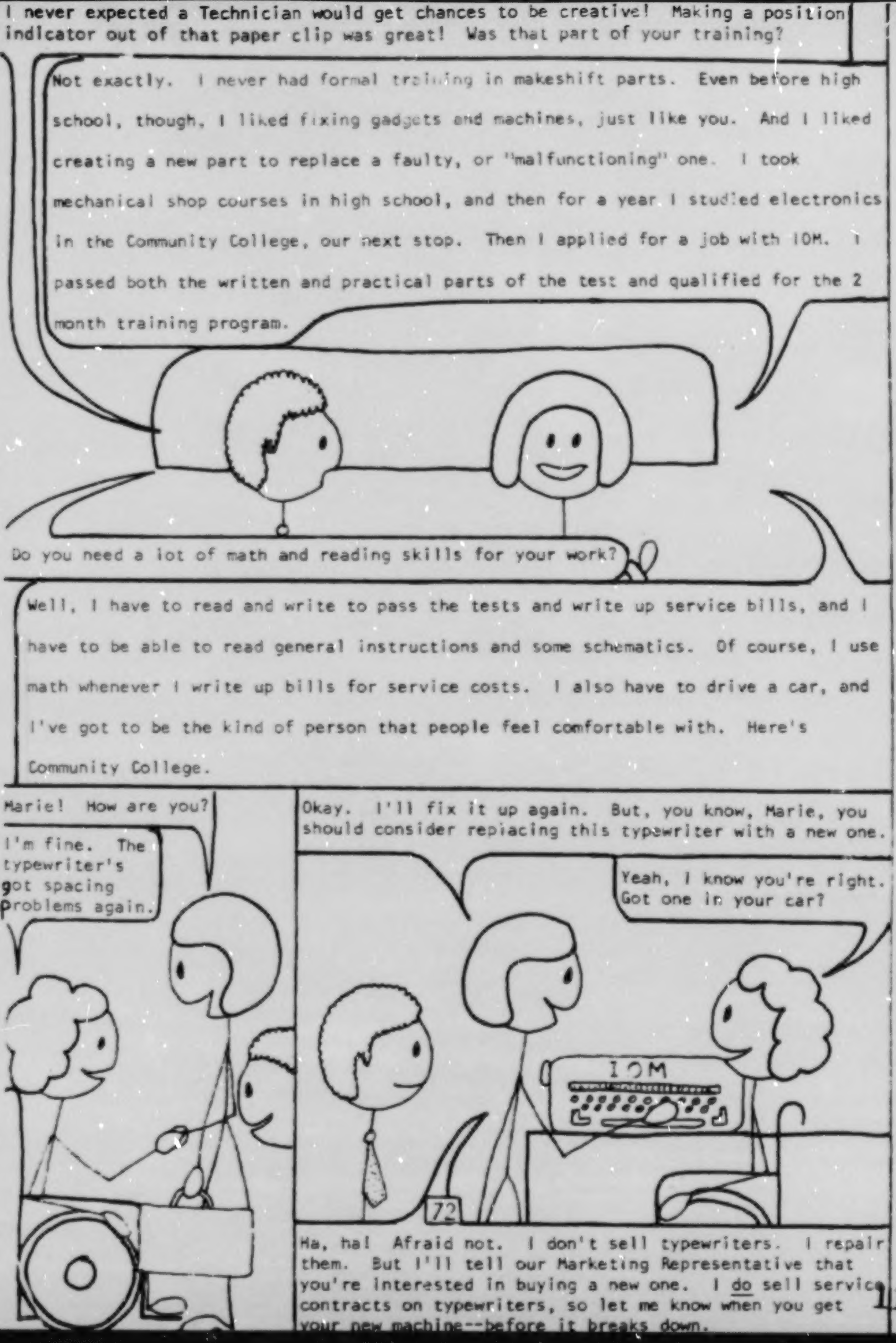
Not yet. You see, all IOM Repair Technicians start out repairing typewriters. After **2 years or so,** Technicians can request training in the repair of more complicated machines, like computers. There'll be a trainee opening in computer repairs soon, and I'll apply for it. But for now, I have my regular customers to take care of. Let's see.... My records show that County Bank, City Hospital, and Community College have other typewriters they can use. Legal Associates has only one typewriter, and it's not working. That's **where** we'll go first, even though it's farthest away. Route planning is one of my most impor**tant tasks.** It means taking care of the customer with the most urgent needs first. It's part of what we call "customer satisfaction." Let's go.

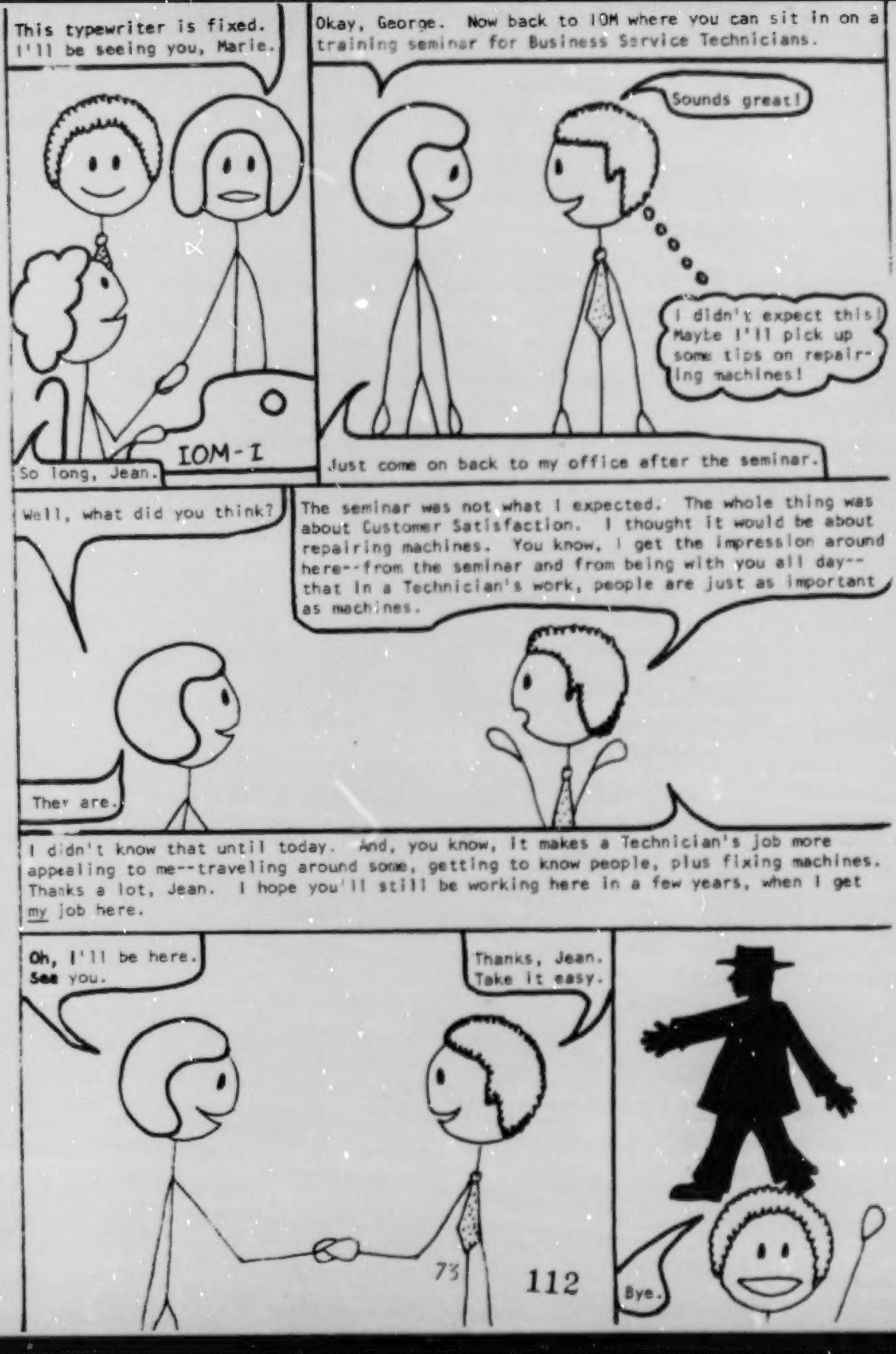

I thought Business Machine Service Technicians just fixed broken machines. Customer satisfaction means getting along with people, doesn't it?
NITURE
1 HOUR CLEANER
FOOD
Yes. In my job, it's just as important as being able to fix typewriters. You'll see.


Hi, Pat. What's the problem?
I'll never have this legal brief typed by 10:30! I have at least a half hour's typing left to do!
LEGAL ASSOC
Pat, I'll try to have your typewriter fixed in 15 minutes. That'll leave you 45 minutes to finish typing the legal brief. Now, show me the problem with the machine.
IOM
The carriage return isn't coming all the way back to the margin I have set--see? And the typewriter sometimes skips--like that!
IOM SELECTIVE II
It sure is aggravating when machines don't work the way they're supposed to. The problem here is something I can fix easily. A simple adjustment with the screwdriver, and there! It's fixed. You have plenty of time to type that legal brief.
Jean is wonderful!
This is not what I expected!
I sure was surprised when you pulled that screwdriver out of your purse and fixed the typewriter!
Looks like a purse to you, huh? Well, here's another surprise for you. That's my toolbox. Take a look inside.
Let's see.... Here's an ohmmeter, pliers, screwdrivers, calipers, gauges, wrenches--I see just about all the everyday tools, except a socket wrench. And here are some things I don't recognize.
Those are specialized tools for IOM typewriters. I learned to use them in my training course. Here we are at County Bank.


Hi, Fred! How's it going?
Jean! I didn't expect you so soon. I've got 2 machines not working. Nothing happens when I turn them on. They're over there.
Thanks, Fred.
COUNTY BANK
This might take a while to figure out. Let's see, now. It's plugged in, and the outlet's working. George, will you hand me the ohmmeter from my "purse"?
Sure.
IBM SELECT
I didn't expect this!
I was sure the problem was just that the typewriters weren't plugged in. Do you ever answer calls and find out that's the trouble?
No. That would embarrass a customer, and we take care to see that it doesn't happen. When a customer calls in to report trouble with a typewriter, our secretary always tells the customer right away to be sure the machine is plugged in.
City Hospital
PARKING
Good idea.
Here's City Hospital. We go to the records office.


Hello, Jeff. How's business?
Not so good, Jean, without my typewriter.
RECORDS OFFICE
IOM
Show me the problem, and I'll get to work on it right away.
When I strike a key, nothing happens. It doesn't type at all. And the position indicator fell off.
Thanks, Jeff. Goerge, the first thing I'll do in this situation is turn the machine on and listen for any unusual sounds. Then I'll take it apart and examine the parts to detect wear or some other cause of the malfunction.
What's a "malfunction"?
A failure to work or operate properly. Depending on what I find out when I look inside, I'll either make an adjustment on the faulty part or install a new part.
IOM
Hey, that's just what I did when I fixed my sister's record player!
Here's the problem! A loose nut! I'll tighten it up, and there! It types just find. Now, the position indicator is a different story. I don't have a spare one with me. I can bring one by tomorrow and put it on, but in the meantime, let's see if I can rig up something that'll do the job till then. Hmmm.... I think I can make one out of this paper clip.... There!
Okay, Jeff. You're all set till tomorrow. I'll see you then.
Thanks, Jean. I'll see you tomorrow.


I never expected a Technician would get chances to be creative! Making a position indicator out of that paper clip was great! Was that part of your training?
Not exactly. I never had formal training in makeshift parts. Even before high school, though, I liked fixing gadgets and machines, just like you. And I liked creating a new part to replace a faulty, or "malfunctioning" one. I took mechanical shop courses in high school, and then for a year I studied electronics in the Community College, our next stop. Then I applied for a job with IOM. I passed both the written and practical parts of the test and qualified for the 2 month training program.
Do you need a lot of math and reading skills for your work?
Well, I have to read and write to pass the tests and write up service bills, and I have to be able to read general instructions and some schematics. Of course, I use math whenever I write up bills for service costs. I also have to drive a car, and I've got to be the kind of person that people feel comfortable with. Here's Community College.
Marie! How are you?
I'm fine. The typewriter's got spacing problems again.
Okay. I'll fix it up again. But, you know, Marie, you should consider replacing this typewriter with a new one.
Yeah, I know you're right. Got one in your car?
IOM
Ha, ha! Afraid not. I don't sell typewriters. I repair them. But I'll tell our Marketing Representative that you're interested in buying a new one. I do sell service contracts on typewriters, so let me know when you get your new machine--before it breaks down.


This typewriter is fixed. I'll be seeing you, Marie.
So long, Jean.
IOM-I
Okay, George. Now back to IOM where you can sit in on a training seminar for Business Service Technicians.
Sounds great!
I didn't expect this! Maybe I'll pick up some tips on repairing machines!
Just come on back to my office after the seminar.
Well, what did you think?
The seminar was not what I expected. The whole thing was about Customer Satisfaction. I thought it would be about repairing machines. You know, I get the impression around here--from the seminar and from being with you all day--that in a Technician's work, people are just as important as machines.
They are.
I didn't know that until today. And, you know, it makes a Technician's job more appealing to me--traveling around some, getting to know people, plus fixing machines. Thanks a lot, Jean. I hope you'll still be working here in a few years, when I get my job here.
Oh, I'll be here. See you.
Thanks, Jean. Take it easy.
Bye.

Check Out the Facts: Business Machine Service Technician

Fill in all blanks. Check your answers.

Hello, Jean! This is George.

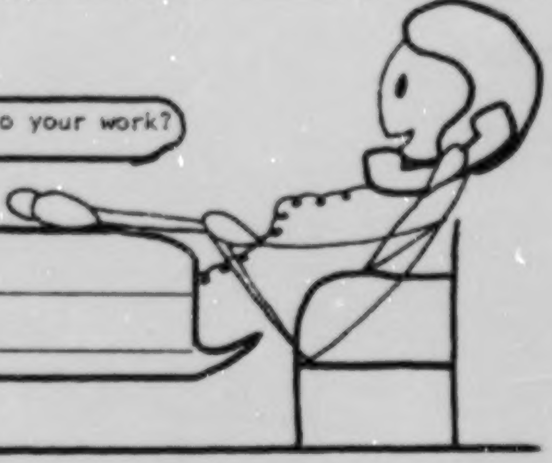
Hello, George.

I'm writing up my Shadow Report and I want to check my information with you. Can you tell me 3 of your on-the-job skills and tasks?

Sure.

1. ______________________________
2. ______________________________
3. ______________________________

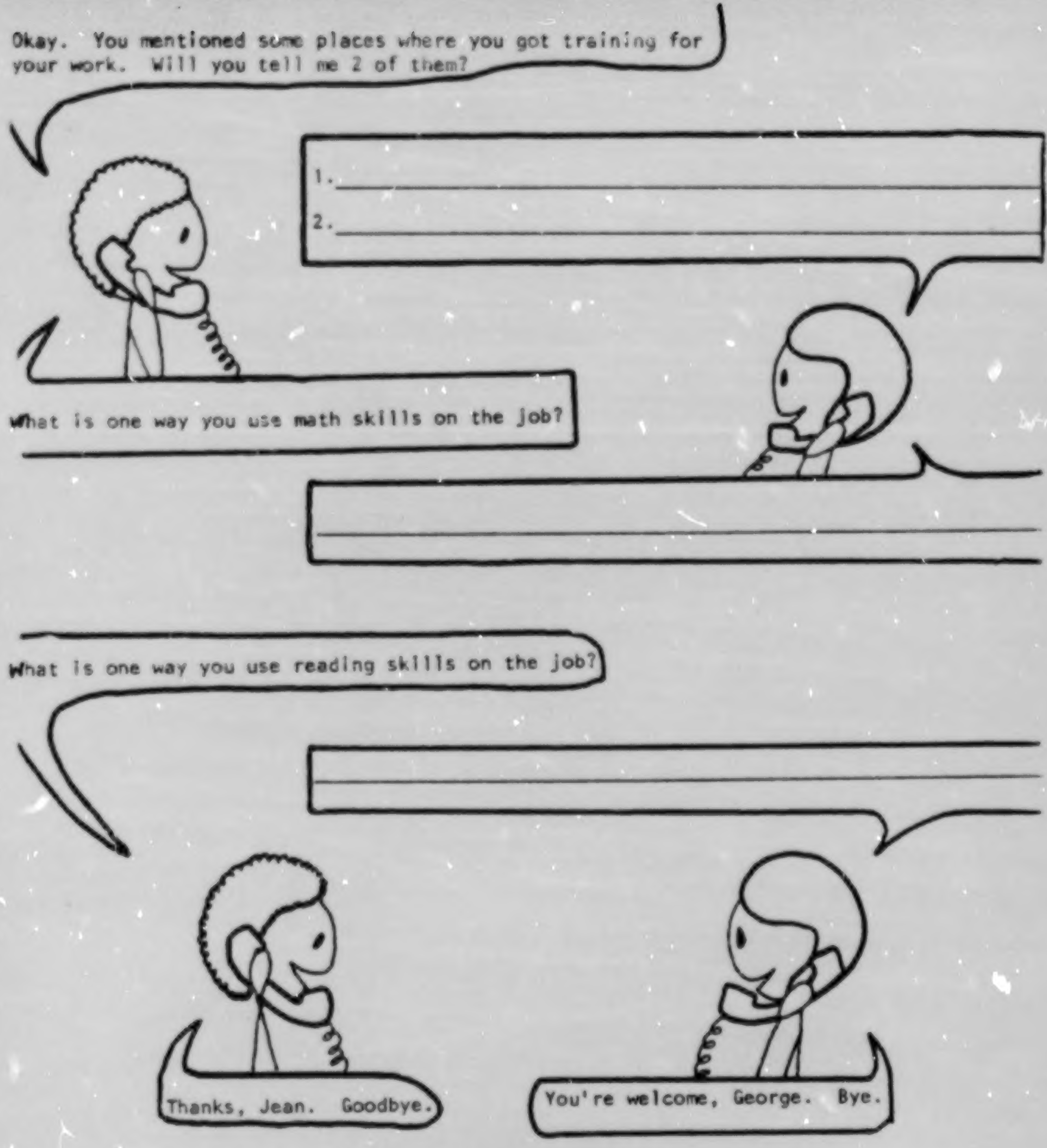
Thanks. Now can you tell me 2 places where you do your work?



1. ______________________________
2. ______________________________

Good. Will you tell me 3 tools or pieces of equipment you use and what you use each one for?

1. ______________________________
2. ______________________________
3. ______________________________


Okay. You mentioned some places where you got training for your work. Will you tell me 2 of them?
1.
2.
What is one way you use math skills on the job?
What is one way you use reading skills on the job?
Thanks, Jean. Goodbye.
You're welcome, George. Bye.

BUILDING MAINTENANCE WORKER

OTHER WORKERS WITHIN THE CUSTODIAL SERVICES UNION INCLUDE

upholsterers, carpenters, cleaners, security personnel, movers, grounds keepers, heating personnel, plumbers, electricians, utility shop personnel, paint shop personnel, locksmiths, door closers, speciality crews (research supplies, update chemicals, purchase equipment, answer emergency telephone calls, keep records, use computers).

POSITIONS:

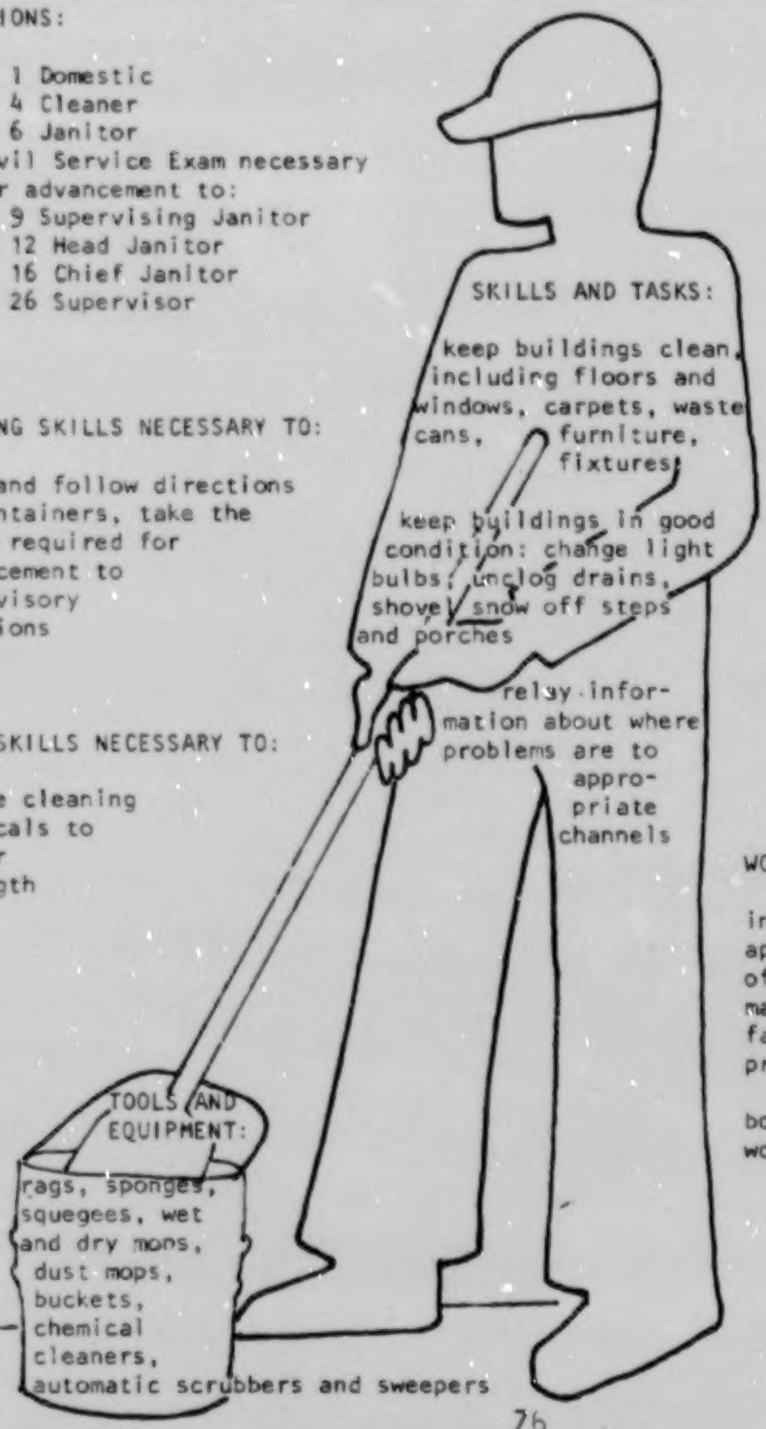
Grade 1 Domestic
Grade 4 Cleaner
Grade 6 Janitor
  Civil Service Exam necessary for advancement to:
Grade 9 Supervising Janitor
Grade 12 Head Janitor
Grade 16 Chief Janitor
Grade 26 Supervisor

READING SKILLS NECESSARY TO:

read and follow directions on containers, take the tests required for advancement to supervisory positions

MATH SKILLS NECESSARY TO:

dilute cleaning chemicals to proper strength



SKILLS AND TASKS:

keep buildings clean, including floors and windows, carpets, waste cans, furniture, fixtures

keep buildings in good condition: change light bulbs, unclog drains, shovel snow off steps and porches

relay information about where problems are to appropriate channels

TOOLS AND EQUIPMENT:

rags, sponges, squeegees, wet and dry mops, dust mops, buckets, chemical cleaners, automatic scrubbers and sweepers

TRAINING:

minimum qualifications: physically capable of manual labor, high school diploma preferred

all training can be acquired on the job through courses in a wide variety of subjects, from basic writing, use of computers, to air conditioning repair

WORK PLACES:

indoors and outdoors around apartment houses, hospitals, office buildings, manufacturing plants, factories, schools, churches, private businesses

both part- and full-time work available

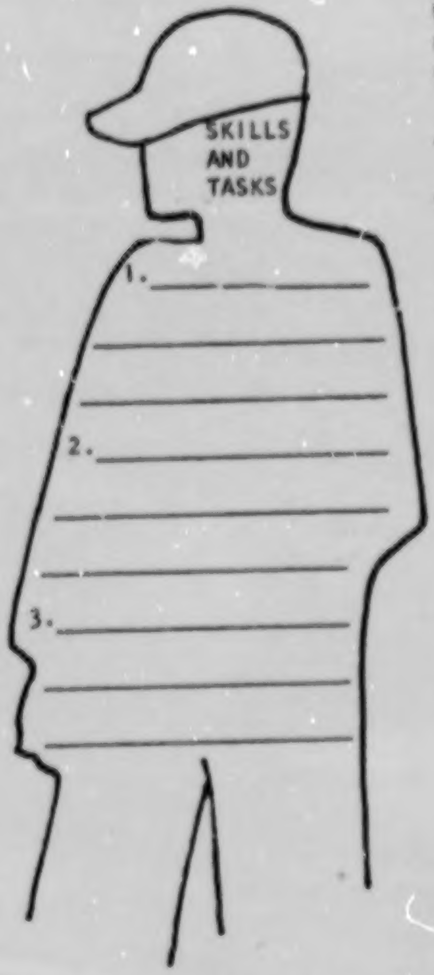
BUILDING MAINTENANCE WORKER

Answer the question and fill in the blanks.

Where can building maintenance workers get training?

____

____


SKILLS
AND
TASKS
1. ____________
____
____
2. ____________
____
____
3. ____________
____
____

READING SKILLS NECESSARY TO:

____

____

____

MATH SKILLS NECESSARY TO:

____

____

____

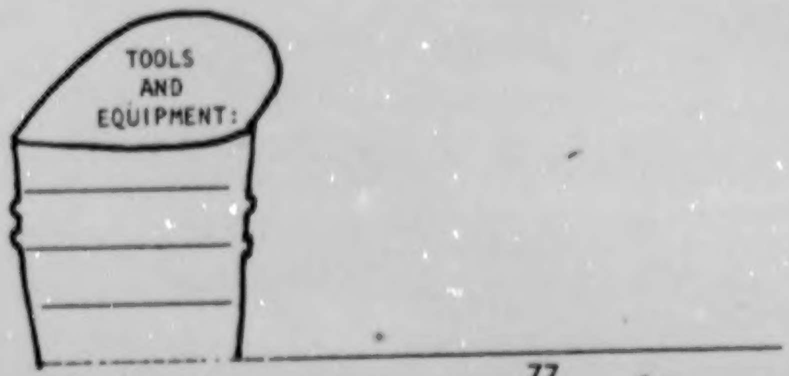
WORK PLACES:

1. ____________________

____

2. ____________________

____


TOOLS
AND
EQUIPMENT:
____
____
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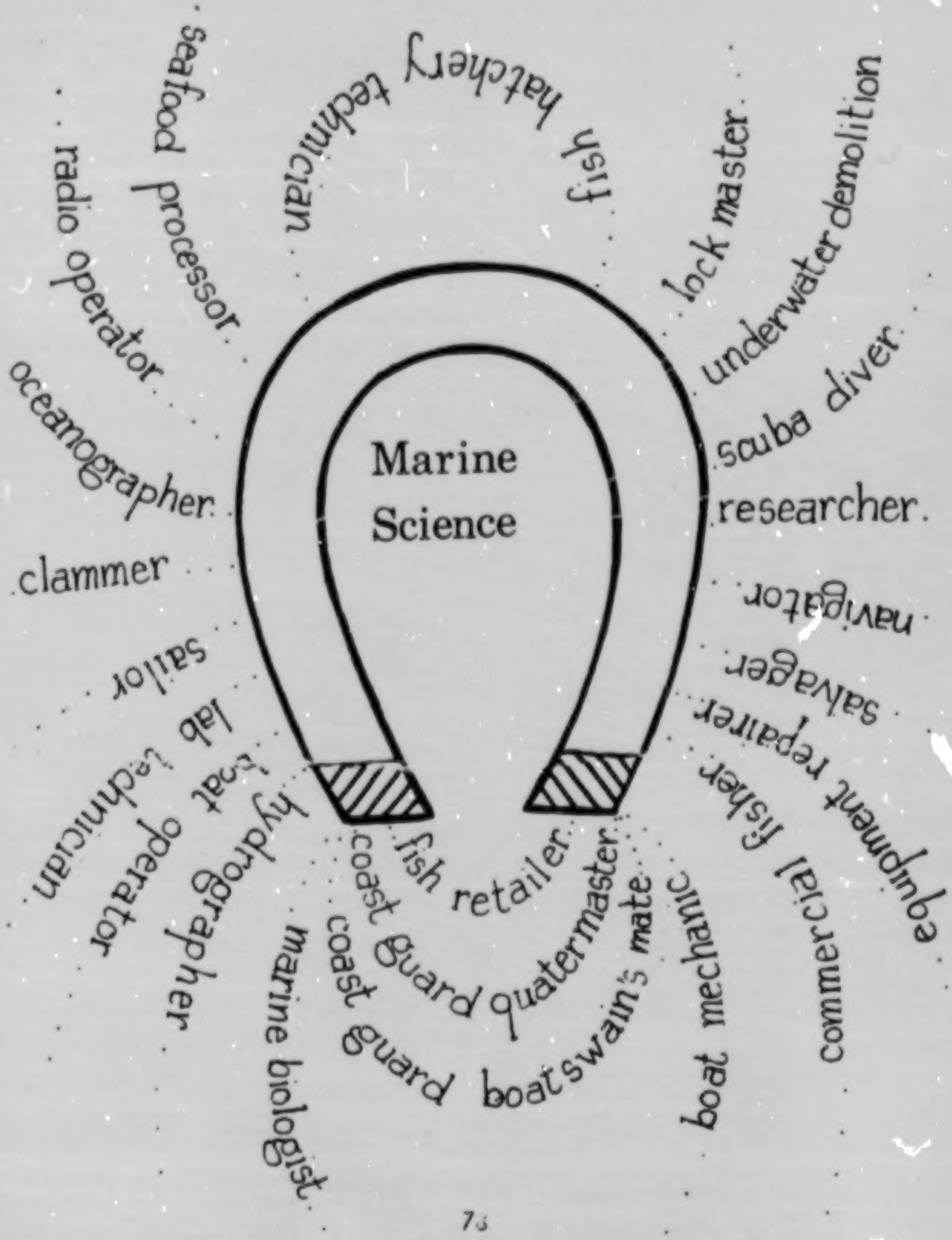

Marine Science
seafood processor
radio operator
oceanographer
clammer
sailor
lab technician
boat operator
hydrographer
marine biologist
coast guard boatswain's mate
coast guard quatermaster
fish retailer
boat mechanic
commercial fisher
equipment repairer
salvager
navigator
researcher
scuba diver
underwater demolition
lock master
fish hatchery technician

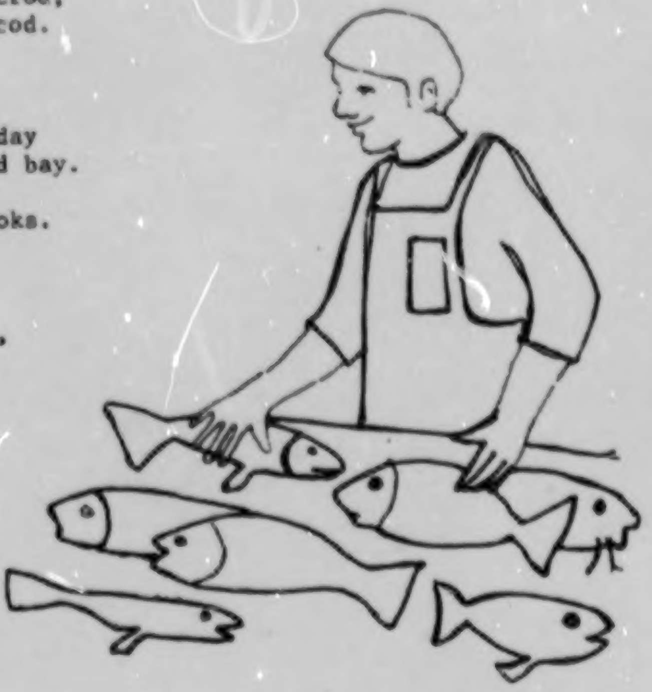
A FISH RETAILER TALKS ABOUT...

FISHY BUSINESS

Sea trout, sea bass, ocean perch and scrod,
Blue fish, red snapper, whitefish and cod.
All of these and many more,
Can be found in this fish store.

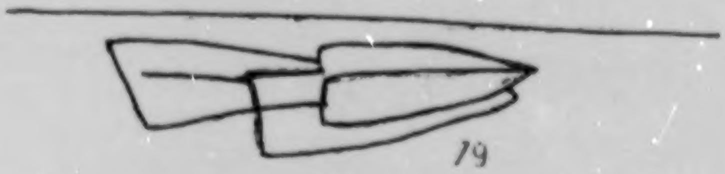
I work here cutting and cleaning each day
The fish that arrive from the ocean and bay.
Lakes, rivers, streams, and brooks,
Also hold fish prized by eaters and cooks.

Some people like their fish whole,
And some just like the fillet.
My job is to get either ready for them,
And do it without **delay**



Fish is high in protein and minerals.
Each kind has its own special taste.
I know how to cut it correctly and fast,
With the least amount of waste.

Now cleaning a fish is not too hard,
But lots of practice it takes.
With knives, steel, and scrapers I must stay on my guard,
So I don't get cut or make mistakes.



During every working day, I work at gutting, scaling, filleting, and boning,
For each task there is a special knife which needs sharpening or honing.
For this, I use an oil stone or sharpening machine,
To keep my knives and my cleaver razor-sharp and clean.

A clean cutting board and coolers, wrapping paper, and a sink
Help me do my work with the least amount of stink.
I use a large white apron to cover all my clothes,
So that when I go home, my wife doesn't have to hold her nose.

Working in the fish market is really quite pleasant,
Even though there is a fishy and salt water smell.
I get to meet all kinds of people,
Who see that I do my job quite well.

Being pleasant and helpful is part of my work;
Besides being a fish cleaner, I'm also a sales clerk.

I put math to work daily using cash register and scales,
And I must also be friendly if I expect to make sales.
I figure out wholesale and retail prices,
Based on the cost of fish to the store.
This includes a percentage plus profit.
After a big fish delivery, this can be quite a chore.

This work is learned through on-the-job training.
Once you master it, you have a good trade.
Learning may take anywhere from one month to ten,
But when you're good you have it made.

Quiz Yourself

FISH RETAILER
Fill in all blanks. Check all answers.

I. Name 3 on-the-job skills or tasks of a Fish Retailer.

1.____

2.____

3.____

II. Name 3 tools or pieces of equipment that are necessary for a Fish Retailer to do the job, and 1 use for each.

TOOLS	USES
1.____________________	1.____________________
2.____________________	2.____________________
3.____________________	3.____________________

III. Name and describe 1 work place.

1.____

IV. Name 1 place where a Fish Retailer works.

1.____

V. Since a Fish Retailer may not do much reading on the job, name 2 ways that math is used on the job.

1.____

2.____

COAST GUARD QUARTERMASTER

The Coast Guard Quartermaster uses four different methods (Celestial Navigation, Dead Reckoning, Piloting, and Electronic Navigation) to NAVIGATE or GUIDE THE COURSE OF A SHIP. Navigation includes determining or figuring out:

1) the course or pathway of a ship,
2) the ship's position or "fix,"
3) the distance to a ship's destination,
4) the distance traveled by a ship.

Read the definitions below; then enjoy this poem which describes life as a Coast Guard Quartermaster. Use a dictionary to look up the meanings of other unfamiliar words.

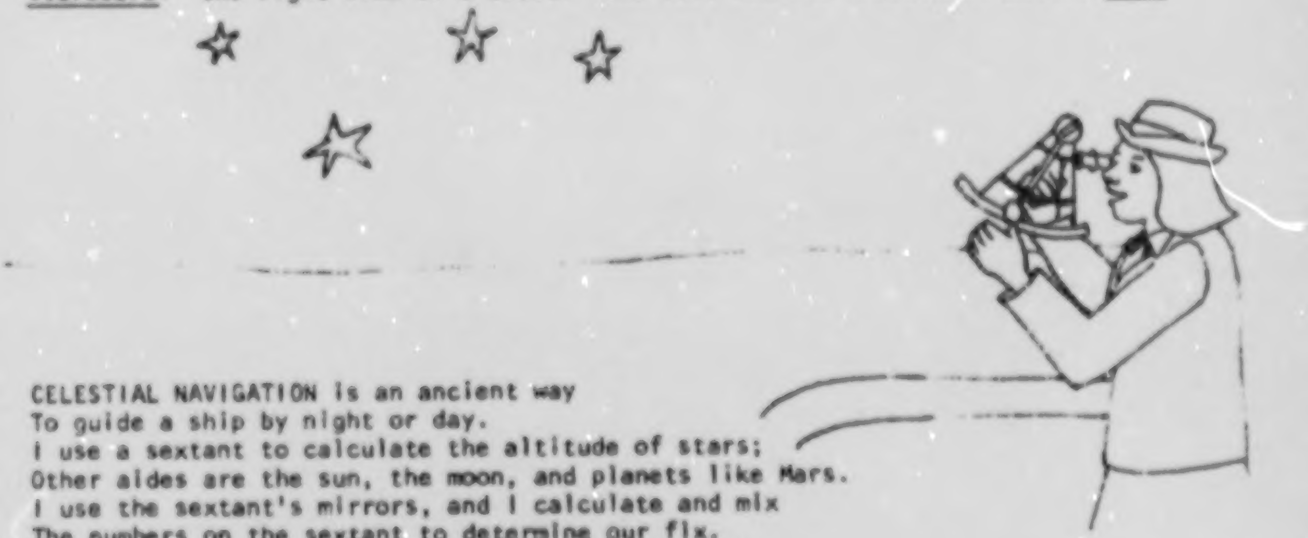
compass: a card with a swinging needle which always points to the magnetic North Pole.

craft: a boat or ship.

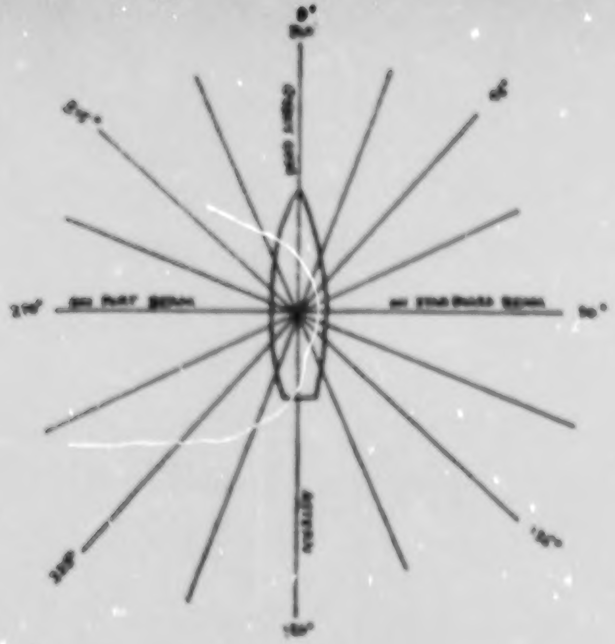
E.T.A.: estimated time of arrival.

kingposts and beams: important supporting posts in a ship's "rigging" (system of useful chains, lines, and ropes).

starboard: the right side of a craft. The left side of a craft is called port.

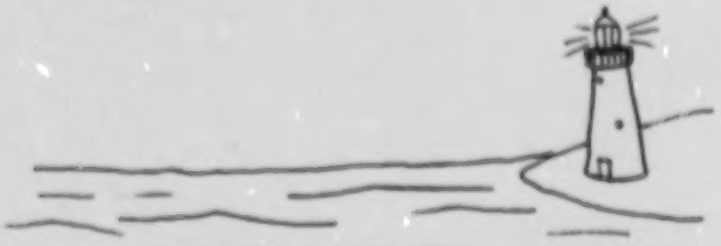


CELESTIAL NAVIGATION is an ancient way
To guide a ship by night or day.
I use a sextant to calculate the altitude of stars;
Other aides are the sun, the moon, and planets like Mars.
I use the sextant's mirrors, and I calculate and mix
The numbers on the sextant to determine our fix.
The sextant's used with a very accurate clock
Called a chronometer, protected from temperature, change, and shock.
It takes training, practice, and lots of skill in math
To let the heavenly bodies help you plot out your path.



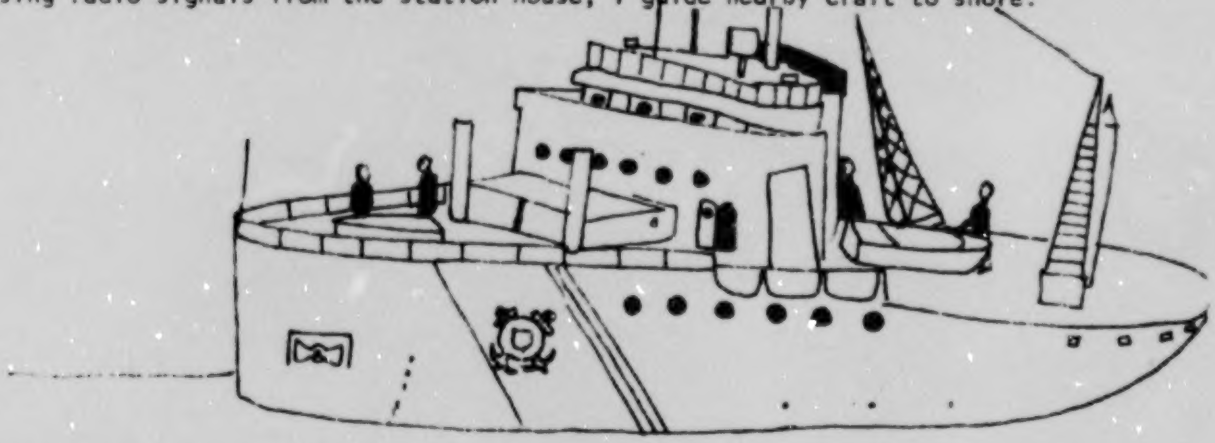
DEAD RECKONING is a way of using geometric degrees
To determine our fix, and get on the course we please.
Three-hundred-sixty degrees form a circle; 0 degrees is "dead ahead."
Ninety degrees means "starboard beam," as you've already read.
The name of this system is "relative bearing";
It's more than handy for crafts which are sea-faring.
When reckoning, I measure the distance between each fix with care,
And try to follow the course I set, precisely.
Using compasses which point north, I get to know where
South, east, and west are, very nicely.
I use charts which are maps of our shore and water ways,
So practice in map-reading skills really pays.

I use PILOTING aides like buoys, landmarks, and light
To help me navigate into harbors and inlets that are tight.
I measure the depth of the water with lead lines, or sound,
And an echo sounder keeps the ship from going aground.
You see, the time it takes for sound waves to reach the bottom and come back
Is measured by this Fathometer, which no large ship should lack.

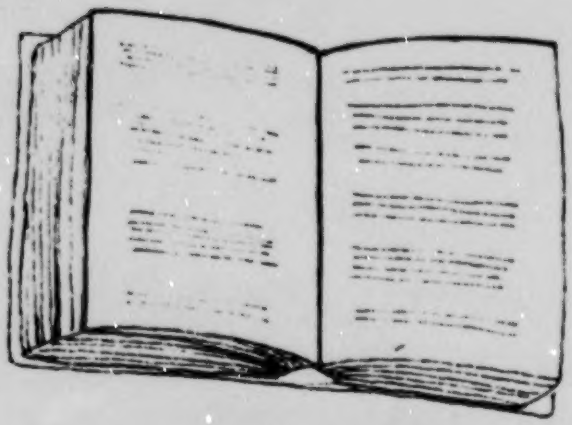


ELECTRONIC NAVIGATION uses Radar and Loran.
These systems help us determine our fix and our course, or travel plan.
Radar picks up radio waves reflected from objects at sea.
Using Loran, signals from outside stations help us find our fix, you see.

As quartermaster, I spend time on deck where the kingposts and beams are erected,
And in the control room and pilot house, with equipment that must be protected.
Though I work aboard ship most of the time, I've got one land-based working chore,
Using radio signals from the station house, I guide nearby craft to shore.



I keep a daily travel Log, in which I write a review of each day.
I read tables and books describing the tides, and shorelines of ocean, and bay.
I do special problems, measure distance, time and speed;
To figure out an E.T.A., I use precise measurements, indeed.
For those who like the sea, and mathematics, I recommend this work.
I use math daily at most of my tasks, more than any sales clerk.
I "struck" for my position here, a kind of on-the-job training.
And between my studies, and my daily tasks,
There's no end to the knowledge I'm gaining.



THE END

Quiz Yourself

COAST GUARD QUARTERMASTER
Fill in all blanks. Check all answers.

I. What are 4 different methods of navigating a ship?

1.____

2.____

3.____

4.____

II. Name 1 tool or piece of equipment for each method of navigation used by a Quartermaster. How is each used?

TOOLS	USES
1.____________________	1.________________
2.____________________	2.________________
3.____________________	3.________________
4.____________________	4.________________

III. Where can someone get the training needed to become a Coast Guard Quartermaster?

1.____

IV. Where does a Quartermaster work?

1.____

V. **Name the** ways a Quartermaster uses math and reading skill on the job.

MATH:____________________________________

READING:_________________________________

BUOYS AND BOATS:
An interview with Mike Bodoin,
Coast Guard Boatswain's Mate

Rae: Hi. I'm Rae Gerome. I called earlier to ask for an interview.

Mike: Yes, I'm petty officer first class, at your service. My name's Mike Bodoin, and I'm a boatswain's mate (pronounced bósun's mate).

Rae: Well, I'd like to learn all I can about life in the Coast Guard, and as much as I can about your particular job as boatswain's mate. I've never been exposed to military life before, and when I read about the Coast Guard, I was pleasantly surprised. I read that the Coast Guard's services include protecting the marine environment, and making all marine transportation safe and lawful. Is that right?

Mike: Yes. You seem to have a good idea about what the U.S. Coast Guard is all about. Did you know that during peacetime, the Coast Guard is part of the U.S. Department of Transportation, and that in wartime, it's part of the Navy?

Rae: No. I didn't know that.

Mike: Well, I'm sure I can tell you a lot you didn't know, because the Coast Guard involves lots of different kinds of work. It's more than a job, it's an occupational way of life.

Rae: How many of you live at this station?

Mike: Well, this is an unusual station, in that there are only 11 of us here.

Rae: What do you all do on a typical day?

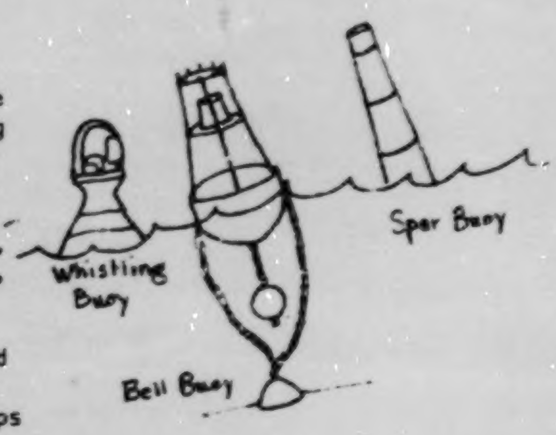
Mike: Well, of course, we're always on the alert and are tuned in to our 24 hour radio, in case we're called to go on a rescue mission, and we do spend some of our time enforcing fishing and trade regulations, but most of our work involves some aspect of buoy maintenance.

Rae: Buoy maintenance? You mean you spend most of your time maintaining buoys?

Mike: That's right.

Rae: Hmm. I guess it's just hard for me to imagine what you do to the buoys. I've always taken them for granted, thinking that they're just light plastic floats that stay in place in the water.

Mike: Ho, Ho. Well, buoys are lots of things, but they are certainly not light. Why, buoys can weigh up to 15 tons. And they're not plastic either. When we work on them, we use special cranes and other heavy equipment. Each buoy we work on probably saves hundreds of ships



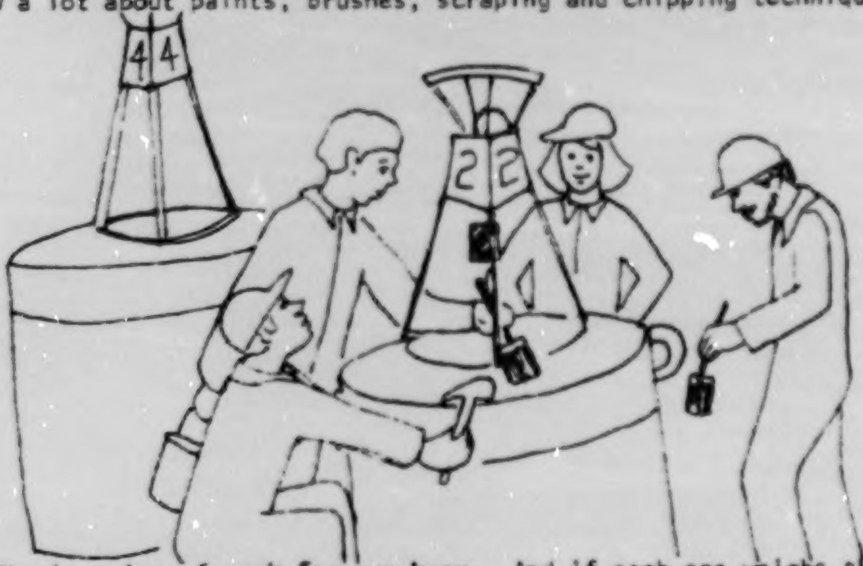
and thousands of lives each year by pointing out shallow areas and obstructions and by serving as guideposts to the quartermasters or pilots who direct ships and boats. Buoys are this country's most commonly used navigational aide, so tending and maintaining them is a big responsibility, and one that makes us feel proud of the kind of work we do.

Rae: So what do you do to the buoys? Clean them up?

Mike: Well, yes. But I'll bet that when you think of cleaning, you're not thinking of the kind of heavy work we do on buoys.

Rae: Do you scrub them?

Mike: We are constantly fighting a battle against rust, corrosion, algae, and damage from ice and poorly managed boats. We use sandblasting equipment, grinding wheels, wire brushes, chipping hammers, and special paint scrapers. The buoys are inspected by a technician, and we may need to do some welding to repair cracks. We also hammer out dents. Then we paint and number the buoys, using special brushes and anti-corrosive paints. And we install new lighting and replace batteries. As boatswain's mate, I supervise this work, and so I have to know a lot about paints, brushes, scraping and chipping techniques.



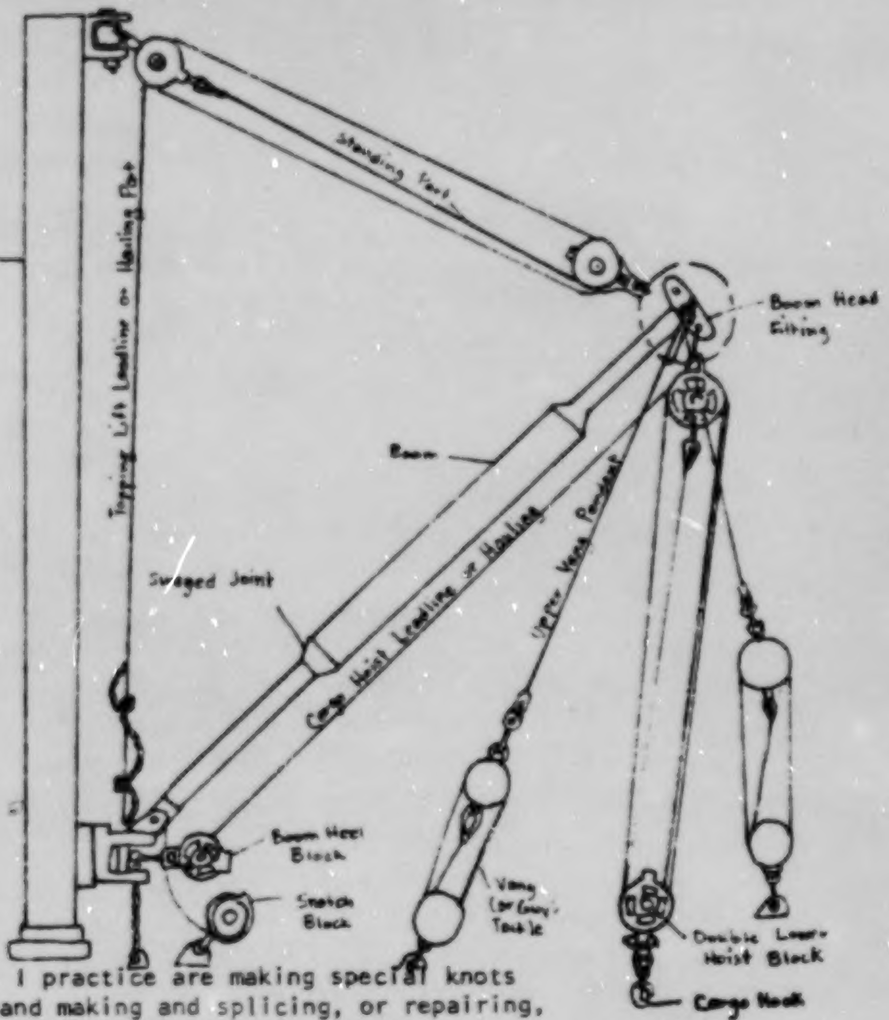
Rae: Wow! That's a lot of work for one buoy. And if each one weighs thousands of pounds, how do you get them all to the station?

Mike: Every boat is rigged, or equipped for maintenance work. Our cranes lift the buoys, and these cranes are operated by a complicated system of wires, chains, ropes, and line. This system is called the ship's rigging. And as boatswain's mate, another one of my responsibilities is to supervise rigging activities, and to inspect the rigging regularly on our boats.

Rae: So your rigging is everything that helps you lift things?

Mike: Yes. Our rigging helps us lift and tow things too. The rigging itself supports the kingpost and mast. Since lifting and towing are so important to the Coast Guard, proper rigging is very important. Some of the most basic

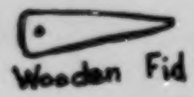
Rigging for
Single Boom

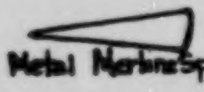

Kingpost
Topping Lift Leadline or Hauling Part
Standing Part
Boom Head Fitting
Boom
Swaged Joint
Cargo Hoist Leadline or Hauling
Upper Vang Pendant
Boom Heel Block
Snatch Block
Vang (or Guy) Tackle
Double Lower Hoist Block
Cargo Hook

and useful skills I practice are making special knots for the rigging, and making and splicing, or repairing, the ropes and lines that form part of the sling and pulley system of the rigging.

Rae: Do you do this work with your bare hands, or do you use special tools?

Mike: Well, making rope can be done with one's bare hands. It basically involves twisting and coiling movements. When we splice rope, though, we use tools like this wooden fid, or we use a metal merline spike. The pointed ends on these tools help us weave small fibers of one rope into the fibers of another rope.


Wooden Fid


Metal MarlineSpike

Rae: Besides inspecting and supervising the work on boat rigging and buoys, do you have other responsibilities?

Mike: Yes I do. I also take responsibility for securing most items to the deck and for anchoring and mooring operations.

Rae: What is "mooring"?

Mike: Mooring is a very secure type of anchoring. Besides all that, as boatswain's mate, I supervise all deck duties, and may even do a bit of navigating. That means guiding and steering the boat to its destination.

Rae: Wow! I'm certainly learning a lot from this interview. Where did you learn everything you know?

Mike: Well, in the Coast Guard, there are basically 2 ways to learn, and to rise in rank and responsibility. Most of us learn through on-the-job training. In the Coast Guard, this is called "striking" for a position. "Striking" means going through a sort of apprenticeship training. For instance, if you strike for a boatswain's mate position, you'll work with a boatswain (shortened form of boatswain's mate). You'll probably start out doing menial tasks, but as you learn, you take on more responsibilities and get plenty of practical experience. You must also study while striking. Then, when you've had some experience working with a boatswain, you take a test. If you pass, you may be promoted in rank. That's how I became a boatswain's mate first class, and I started out as a seaman's apprentice.

Rae: Can you advance in rank by going to school instead?

Mike: Well, some people prefer to go to school. The Coast Guard Academy for officers takes 4 years, and while you're there, you do more than just schoolwork. There's plenty of opportunity to get practical experience, since all Coast Guard schools are located on waterways. Other schools take less time. There is a boatswain's school that offers a 20-week course in practical experience and academic studies.

Rae: Academic studies? You mean you need to study math and reading too?

Mike: You bet! Reading is important in the Coast Guard because we all do a lot of paper work here. Every time we do any kind of maintenance work on a buoy, for instance, we've got to write a description of what we've done, and why, or we have to write a report to tell a technician what we think shoud be done. And we use math plenty too. We check the position of each buoy regularly using charts that show latitude and longitude. Latitude shows how far north or south the buoy is; longitude measures how far east or west the buoy is. We take careful measurements, and use these charts to help us reposition the buoys too. This is really important because a buoy that's in the wrong place can be more dangerous than no buoy at all. Besides all this, if you can't read and do calculations, you'll never be able to pass a test.

Rae: Hmm. Well, I think I'd like the kind of work that you do, myself. I love water. and though I don't know much about boats or other water craft, now I've got some motivation to learn some sea-worthy skills including what I learn in classes at school. Thanks so much for this interview.

Mike: My pleasure. Maybe I'll see you on deck someday!

Quiz Yourself

COAST GUARD BOATSWAIN'S MATE
Fill in all blanks. Check all your answers.

I. What are 3 tasks or responsibilities of a Boatswain's Mate?

1. ______________________________
2. ______________________________
3. ______________________________

II. Name 3 tools or pieces of equipment used by a Boatswain's Mate on the job. What is each used for?

TOOLS	USES
1. ______________	1. ______________
2. ______________	2. ______________
3. ______________	3. ______________

III. What is 1 way someone can get the training needed to become a Boatswain's Mate?

1. ______________________________

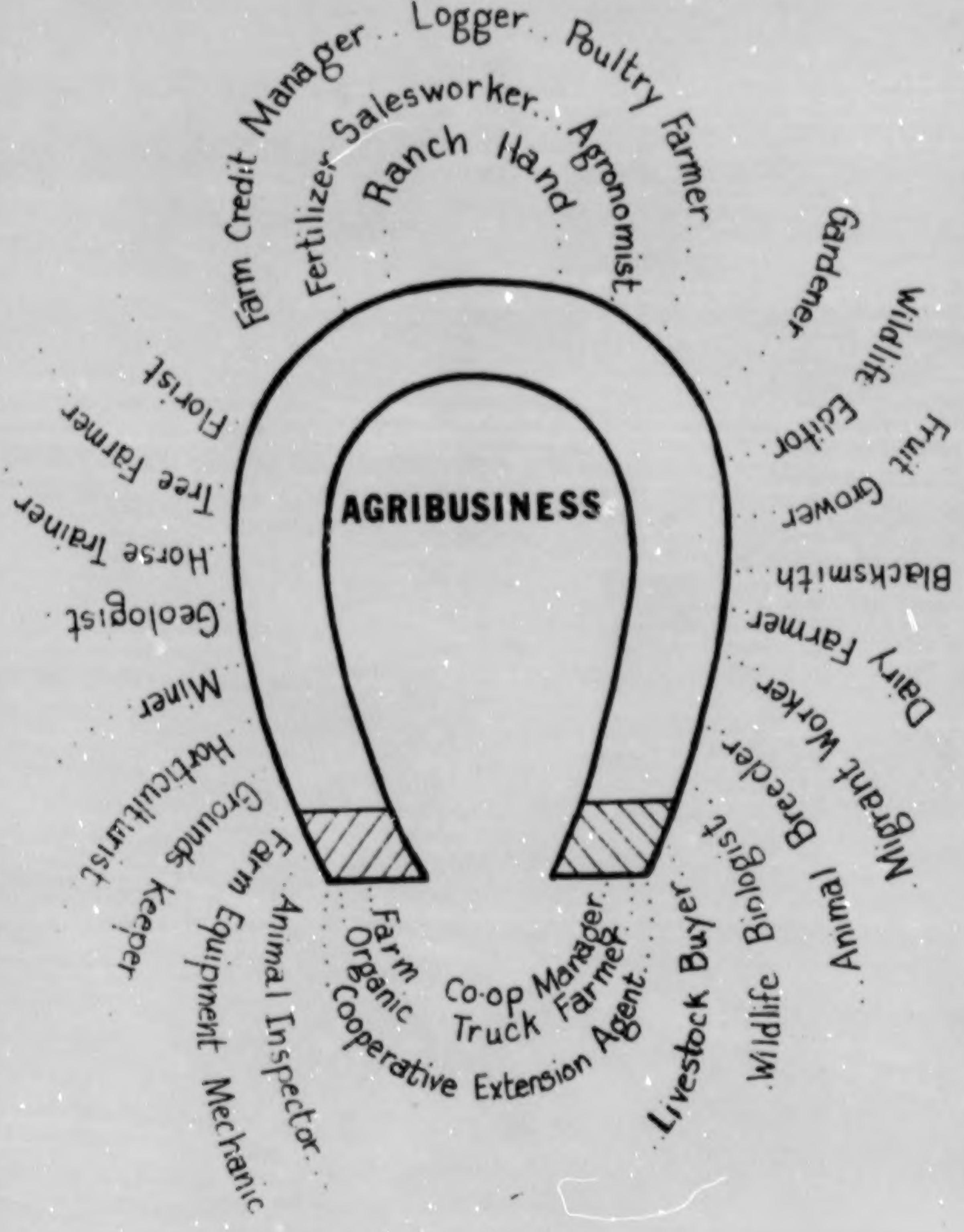
IV. Where do Boatswain's Mates do their work?

1. ______________________________

V. How do Boatswain's Mates use math and reading skills on the job?

MATH: ______________________________

READING: ______________________________


AGRIBUSINESS
Farm Credit Manager
Logger
Poultry Farmer
Fertilizer Salesworker
Agronomist
Ranch Hand
Gardener
Wildlife Editor
Fruit Grower
Blacksmith
Dairy Farmer
Migrant Worker
Animal Breeder
Wildlife Biologist
Livestock Buyer
Co-op Manager
Truck Farmer
Cooperative Extension Agent
Organic Farm
Animal Inspector
Farm Equipment Mechanic
Grounds Keeper
Horticulturist
Miner
Geologist
Horse Trainer
Tree Farmer
Florist

Helen Tobin,
Cooperative Extension Agent

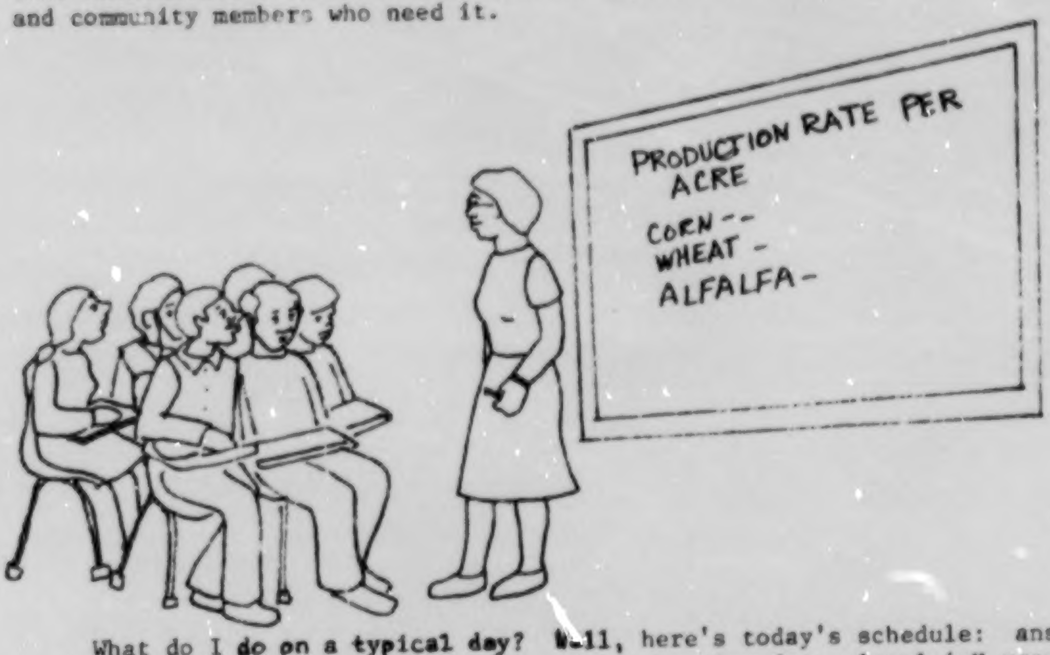
Hello, my name is Helen Tobin. I work for Baxter County as a Cooperative Extension Agent. A Cooperative Extension Agent is employed by the county and the Land Grant College of the state to teach, to distribute educational materials, and to help community members solve problems on farms, at home, or in their communities. Mainly, this is a service job and a teaching job rolled into one. I have to use all kinds of media: pamphlets, newspapers, magazines, radio, TV, slides, and photography to get information to people who need help. In many counties Extension Agents help set up committees. I just started a vegetable growers committee for vegetable farmers. Cooperative Extension Agents also send out monthly newsletters and other helpful information to the committee members on a regular basis.

There are three branches or departments of Cooperative Extension in each county: Agriculture, Home Economics, and 4-H. The Agriculture department fills needs in the farming community, whether it be dairy farming, fruit farming, vegetable farming, or any one of a number of specialties. The Home Economics department fills the needs of the homemaker: foods and nutrition, sewing, family management, child care, and many other specialties. The 4-H department fills the needs of the youngsters. Children aged 8-18 can be 4-H members and participate in activities in many areas: foods, clothing, animals, vegetables, photography, camping, demonstrations, and county fairs to name a few. All three departments serve their own populations but also cooperate and help each other whenever they can.

I started out as an assistant Cooperative Extension Agent in Hilldale County after I had graduated from an agricultural college. I specialized in vegetables at college, so many of the courses I took were about vegetables: planting, growing, diseases, and insect control for example. Some of the main concerns in agriculture right now are loss of top soil, finding good workers to plant and pick the crops, inflation, and energy. I learned about these things in college, as well as about farm management, plant pathology, and culture of soils.

A farm background was not necessary for becoming a Cooperative Extension Agent, but the college required that I do some kind of agricultural work. I chose to work summers helping a farmer with his vegetable planting and haying. The Land Grant College of the state helped me find my first job by keeping my application for work on file. When there were job openings, the College reviewed all of the applications and chose 10-15 suitable ones. Then the county requesting an agent could choose from among these applicants to fill the position.

I started work in Hilldale County as an assistant agent. After five years as an assistant, I decided to go back to college to get my Master's Degree in Agronomy. (That's the branch of agriculture that deals with the raising of crops and the care of the soil.) When I earned this degree, I started looking for another job with more responsibility and higher pay. Again, the Land Grant College of the state helped me find a job using my updated application. I went on several interviews in different counties and finally I took a job here in Baxter County. I've been working here ever since. That's six years now. I teach classes in vegetable gardening and I visit farms and help farmers plan their vegetable growing so they can make a profit. I also introduce new vegetables to farmers so they can expand their produce lines. I answer all kinds of questions about gardening. When I don't know the answers I look them up in the United States Department of Agriculture (USDA) publications or other resource books and send out the information to the people requesting it. Of course, one resource I use often is the Land Grant College of the state. The people there are always researching, developing, and writing about new methods, products, and ideas in all fields, especially energy conservation, soil management, animal feed additives, and developing new hybrid plants resistant to disease. All this information is sent to the counties where I then forward it to the farmers and community members who need it.



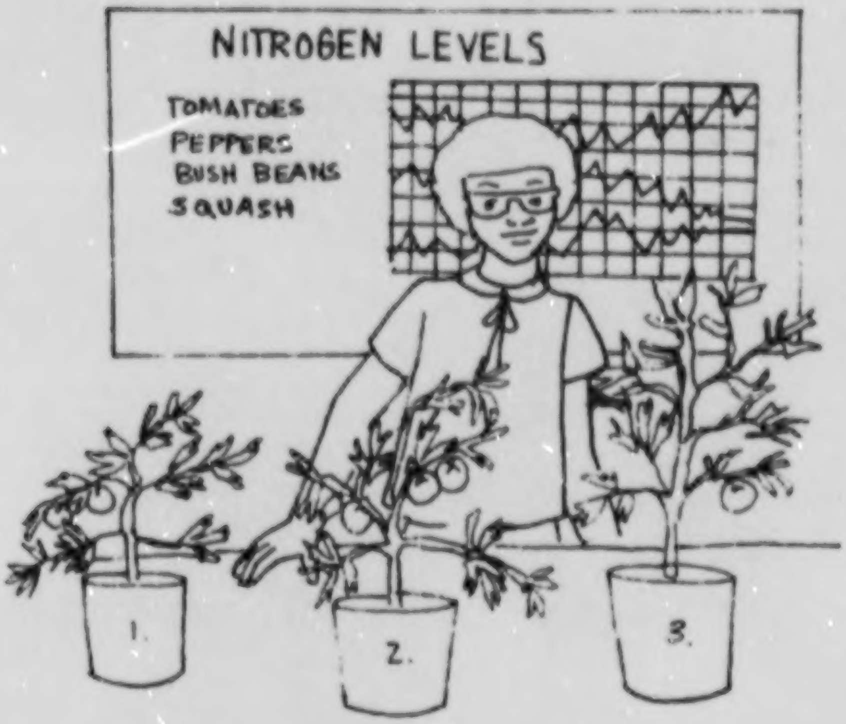
What do I do on a typical day? Well, here's today's schedule: answer the mail, return some phone calls, plan a demonstration for a local 4-H group, help a homeowner with a gardening problem, read a new gardening magazine, attend a luncheon meeting with the fruit growers committee, return to the office to make a phone call to the Land Grant College to plan a county-wide demonstration. Then I'm back on the road to visit a vegetable farmer, and finally, I head home. Sometimes I attend conferences which may last two or three days. I also arrange and attend tours of interest to community members. And once in a while, I might be away for a week to take some in-service courses--usually offered at the Land Grant College.

Now for the tools I use. They include date books and calendars, a telephone, computers, research books, USDA publications, other Cooperative Extension Agents, and many county agencies. I use the telephone a lot. People call in needing information or help with problems. I use the telephone to arrange meetings or teaching space. Since I do a lot of traveling to meetings, to farms, to other counties to prepare for educational programs, and to attend committee meetings, my car is an important tool, too. It gets me where I have to go.

I have a busy schedule every day but I always try to set time aside to catch up on my reading. Reading and math are both important skills I use on the job. I always have reports to fill out and technical journals to read. Once I've read this information, I have to interpret it and sort it out. Then I send it to the appropriate farmers or community members who need it. Other skills which are helpful to a Cooperative Extension Agent are a clear writing style, ability to speak well in front of an audience, and, where the population is bilingual, speaking another language. Often a knowledge of engineering or geology could be helpful, too.

Now, there are always hazards in any job, but this job has fewer than most. One hazard that I try to avoid is losing the trust of the farmers in my county. I carefully research any problems they have so that the information I give them is accurate and doesn't cause worse problems. If I give wrong information, I could lose my credibility and the trust of the farmers. These farmers would not be so quick to ask for my help in the future.

If I wanted to advance in this job, I could pursue more schooling and get a higher degree. But for the most part, the job I have is fun and flexible. I work with perceptive and responsive people, and as an agent I have the chance to meet and work with many different people.


NITROGEN LEVELS
TOMATOES
PEPPERS
BUSH BEANS
SQUASH
1.
2.
3.

QUIZ YOURSELF

Cooperative Extension Agent

Helen does many different things at her job. One main task is to teach classes. Name 3 other skills or tasks Helen does on the job. (Look at pages 44 through 46.)

1.____

2.____

3.____

Helen uses many tools and pieces of equipment on the job. Name 3 of these and 1 use for each. (Look on page 46.)

TOOLS	USES
1.____________________	________________
2.____________________	________________
3.____________________	________________

To become a Cooperative Extension Agent, Helen had to go to college. What kind of college did Helen attend? (Look on page 44.)

____

What kinds of courses did Helen take?

____

____

Now name 2 of Helen's work places. (See pages 45 and 46.)

1.____________________ 2.____________________

Name 1 way Helen can advance in her job. (See page 47.)____________

Name 1 way that Helen uses math and reading on the job. (See page 46.)

math ____________________ reading ____________________

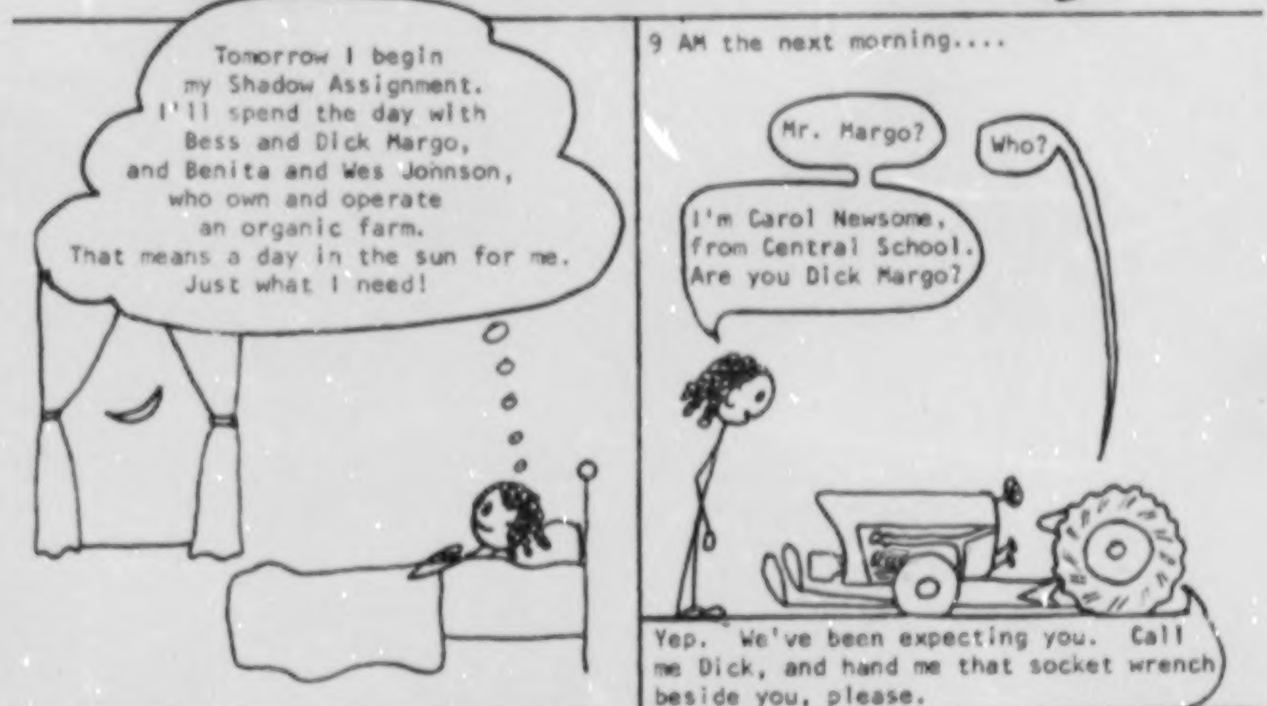
Name 2 other skills that are necessary for Helen to do her job well.

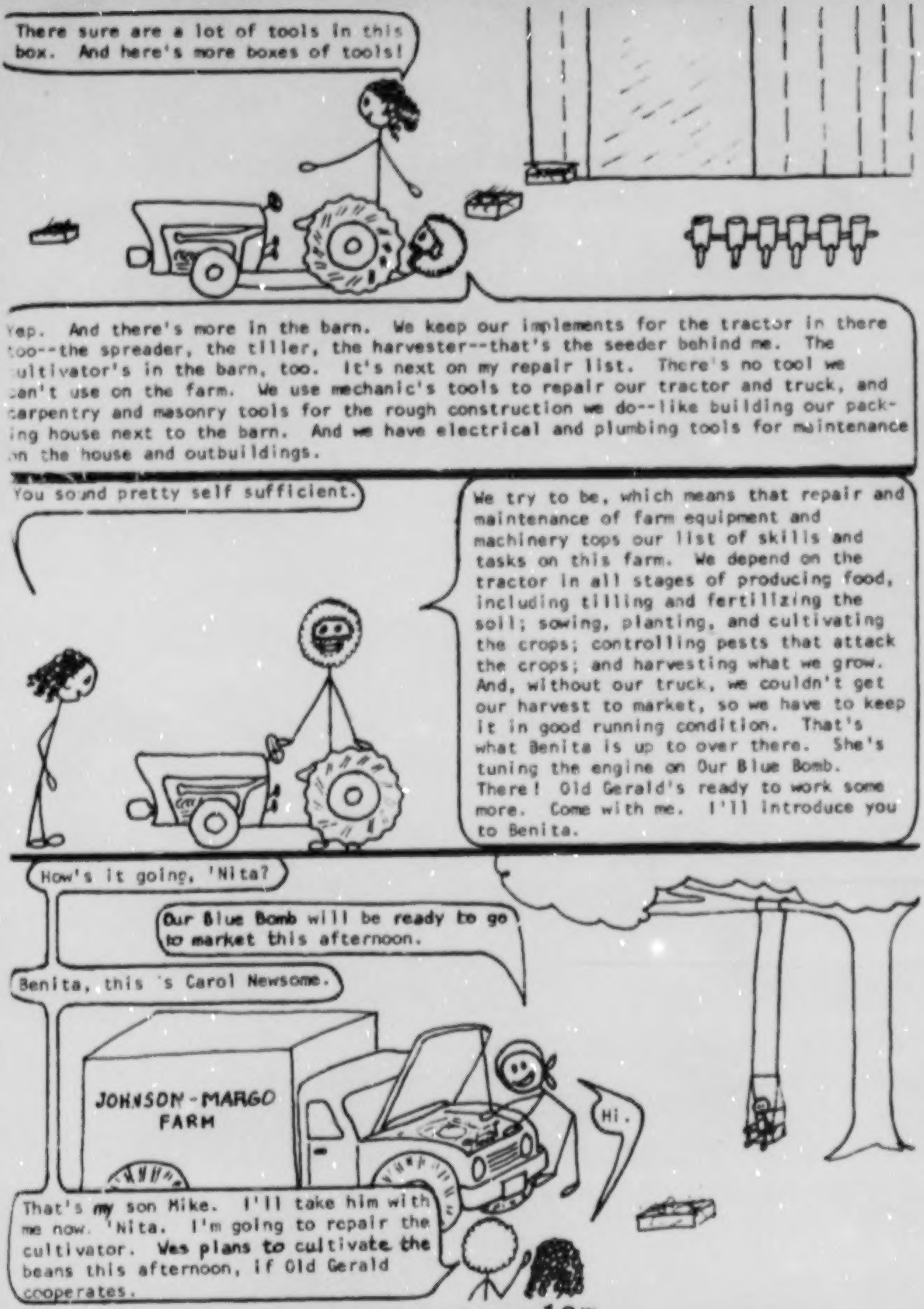
1.____

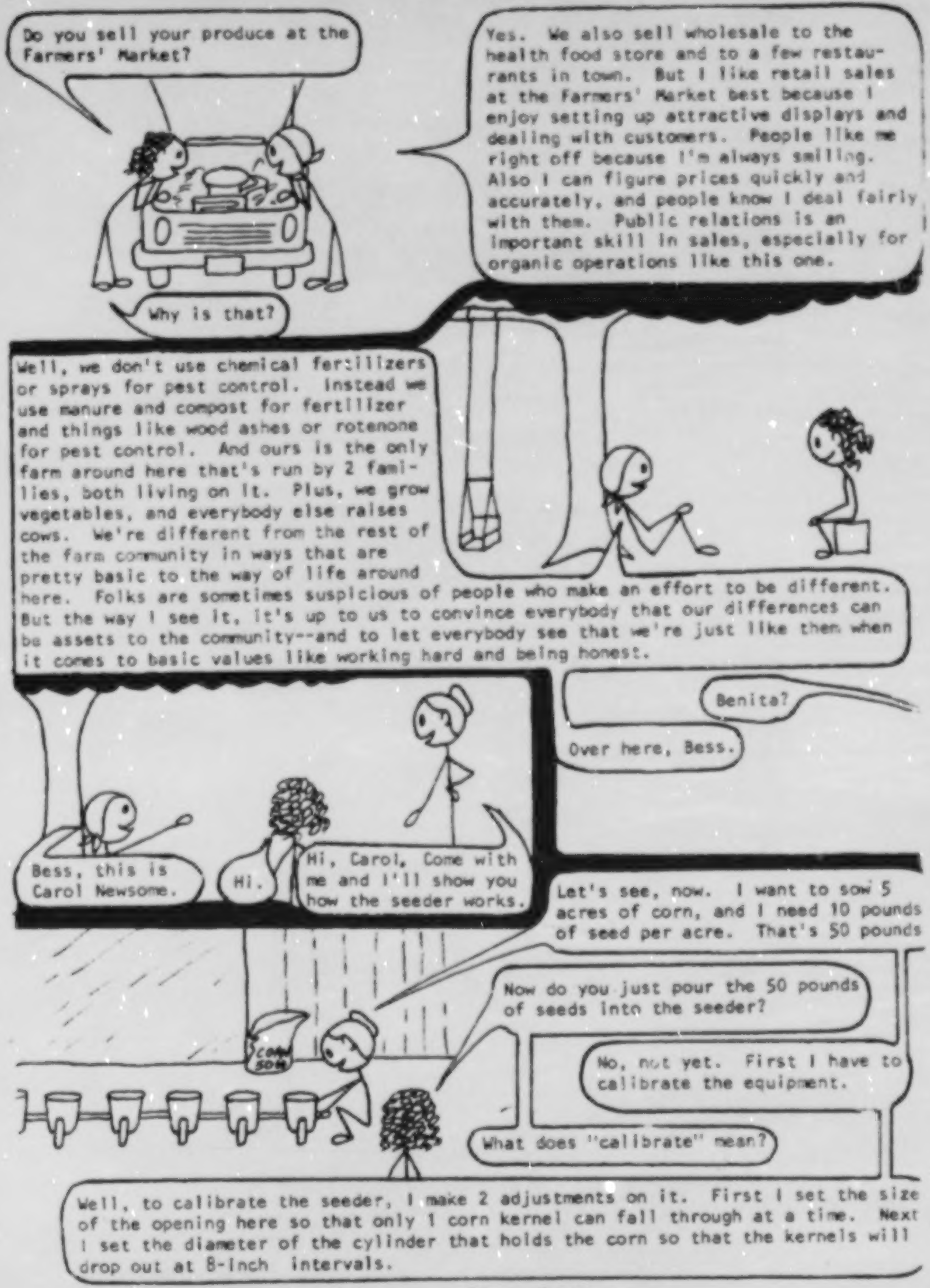
2.____

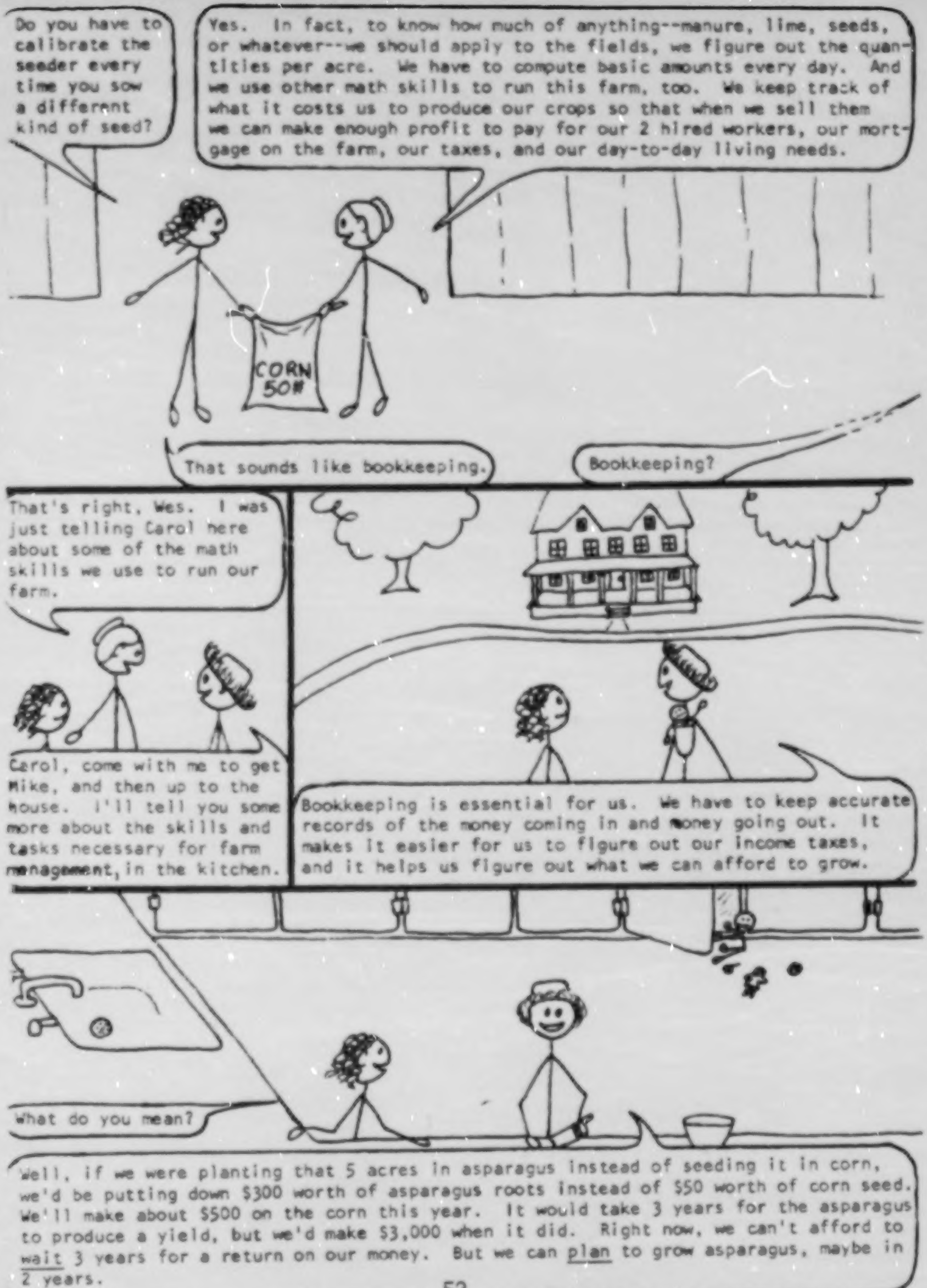
ORGANIC TRUCK FARMER:

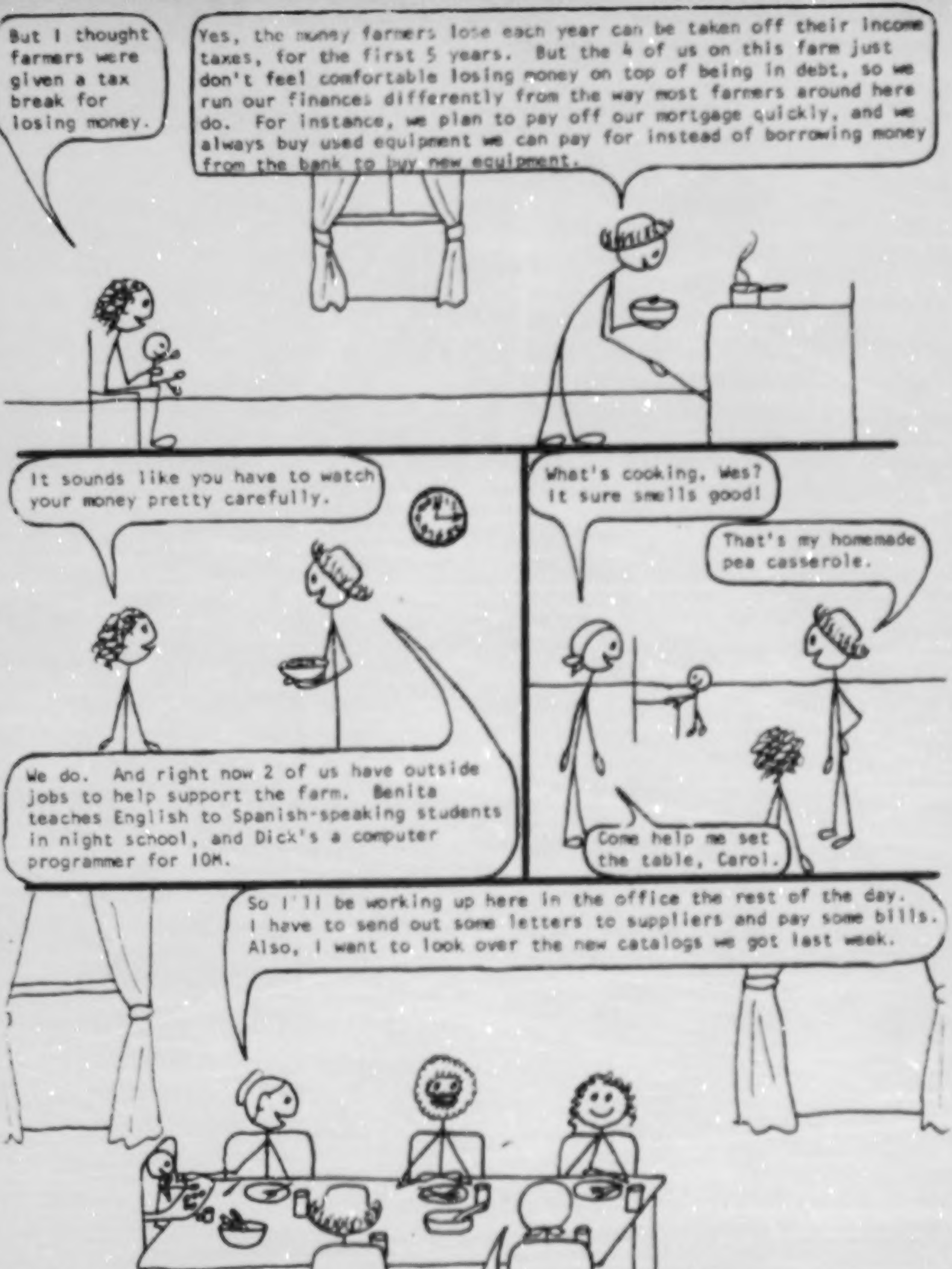
A FARMER WHO GROWS VEGETABLES AND
TRANSPORTS (TRUCKS) THEM TO THE
PLACE WHERE THEY'LL BE SOLD

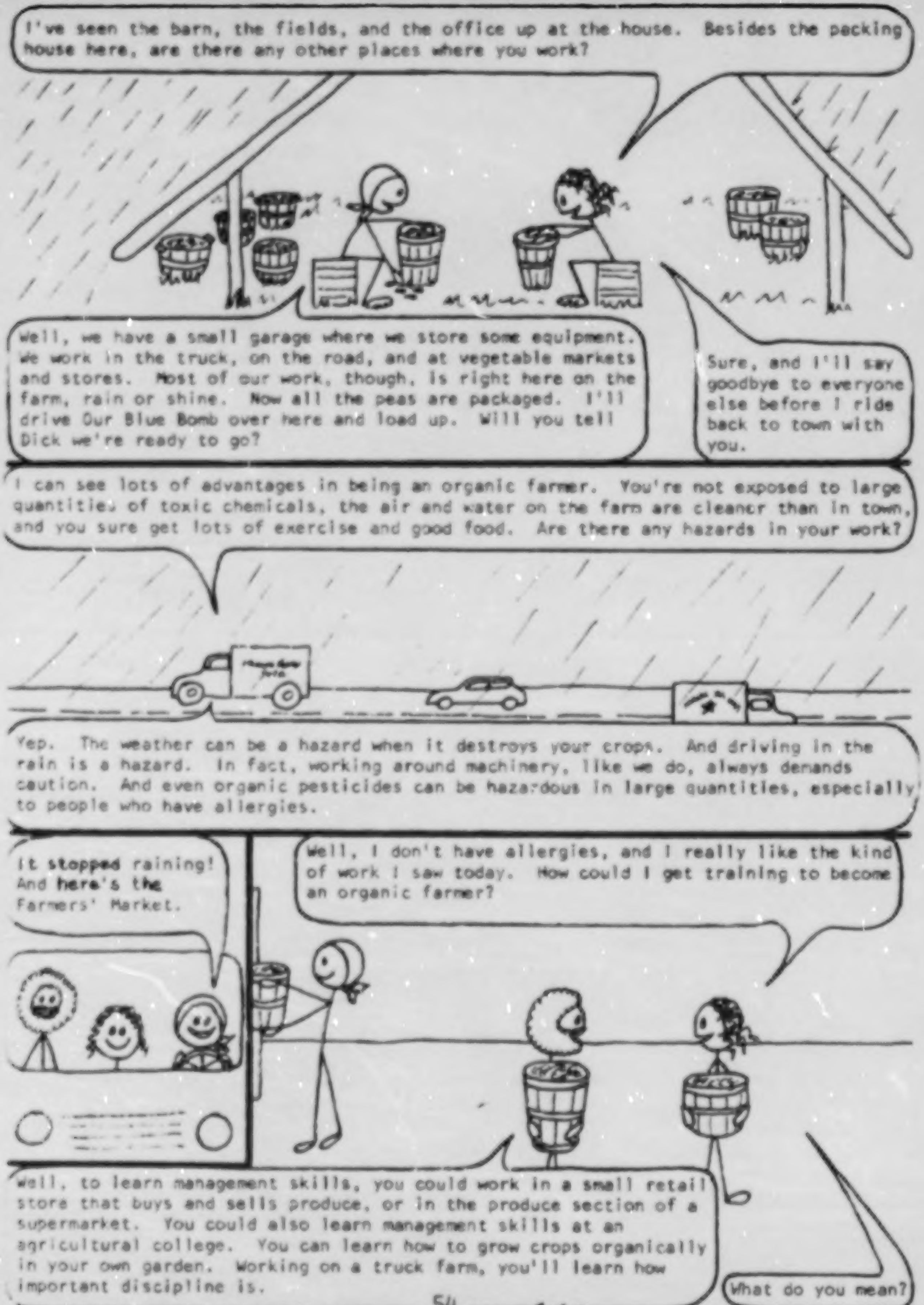

Tomorrow I begin my Shadow Assignment. I'll spend the day with Bess and Dick Margo, and Benita and Wes Johnson, who own and operate an organic farm. That means a day in the sun for me. Just what I need!
9 AM the next morning....
Mr. Margo?
Who?
I'm Carol Newsome, from Central School. Are you Dick Margo?
Yep. We've been expecting you. Call me Dick, and hand me that socket wrench beside you, please.
This one?
Yep, thanks. Old Gerald here has broken down 3 times already this morning, but we figure we can still get a lot of use out of this old tractor. Even though it needs repairs often, we can handle them as long as we have a repair manual, the replacement parts we need, and the tools to fix whatever breaks down. Is there a monkey wrench in that tool box beside you?
Yes, here it is.
A salesworker came by here last week and offered us a special deal on a brand new one--$20,000, a lot more than we want to pay. Old Gerald here cost only $1,000, used of course, and we did a lot of shopping around at auctions for that kind of deal.

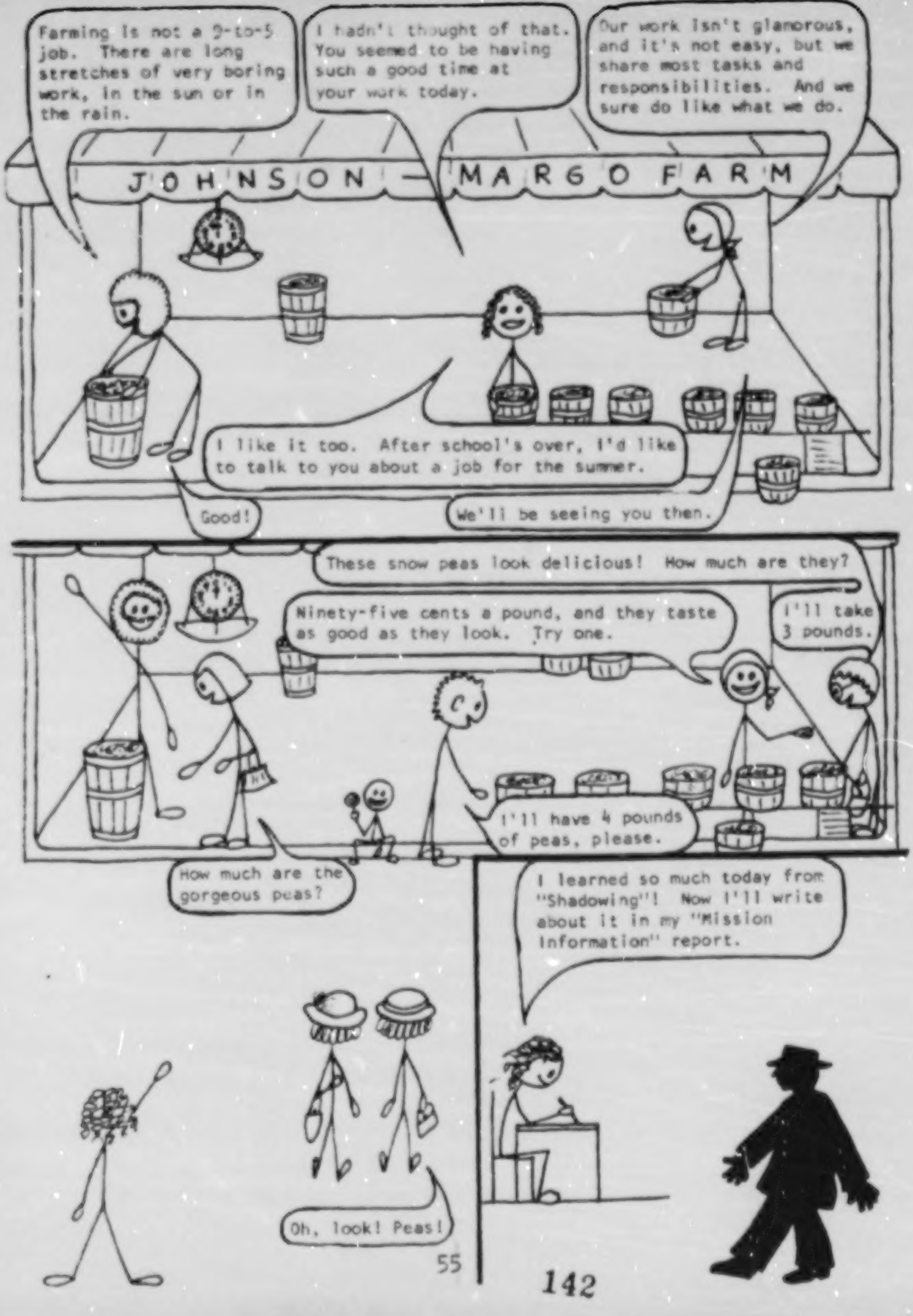

There sure are a lot of tools in this box. And here's more boxes of tools!
Yep. And there's more in the barn. We keep our implements for the tractor in there too--the spreader, the tiller, the harvester--that's the seeder behind me. The cultivator's in the barn, too. It's next on my repair list. There's no tool we can't use on the farm. We use mechanic's tools to repair our tractor and truck, and carpentry and masonry tools for the rough construction we do--like building our packing house next to the barn. And we have electrical and plumbing tools for maintenance on the house and outbuildings.
You sound pretty self sufficient.
We try to be, which means that repair and maintenance of farm equipment and machinery tops our list of skills and tasks on this farm. We depend on the tractor in all stages of producing food, including tilling and fertilizing the soil; sowing, planting, and cultivating the crops; controlling pests that attack the crops; and harvesting what we grow. And, without our truck, we couldn't get our harvest to market, so we have to keep it in good running condition. That's what Benita is up to over there. She's tuning the engine on Our Blue Bomb. There! Old Gerald's ready to work some more. Come with me. I'll introduce you to Benita.
How's it going, 'Nita?
Our Blue Bomb will be **ready to go to market** this afternoon.
Benita, this 's Carol Newsome.
JOHNSON-MARGO FARM
Hi.
That's **my** son Mike. I'll take him with me now, 'Nita. I'm going to repair the cultivator. **Wes plans to cultivate the** beans this afternoon, if Old Gerald cooperates.


Do you sell your produce at the Farmers' Market?
Yes. We also sell wholesale to the health food store and to a few restaurants in town. But I like retail sales at the Farmers' Market best because I enjoy setting up attractive displays and dealing with customers. People like me right off because I'm always smiling. Also I can figure prices quickly and accurately, and people know I deal fairly with them. Public relations is an important skill in sales, especially for organic operations like this one.
Why is that?
Well, we don't use chemical fertilizers or sprays for pest control. Instead we use manure and compost for fertilizer and things like wood ashes or rotenone for pest control. And ours is the only farm around here that's run by 2 families, both living on it. Plus, we grow vegetables, and everybody else raises cows. We're different from the rest of the farm community in ways that are pretty basic to the way of life around here. Folks are sometimes suspicious of people who make an effort to be different. But the way I see it, it's up to us to convince everybody that our differences can be assets to the community--and to let everybody see that we're just like them when it comes to basic values like working hard and being honest.
Benita?
Over here, Bess.
Bess, this is Carol Newsome.
Hi.
Hi, Carol. Come with me and I'll show you how the seeder works.
Let's see, now. I want to sow 5 acres of corn, and I need 10 pounds of seed per acre. That's 50 pounds
CORN 50#
Now do you just pour the 50 pounds of seeds into the seeder?
No, not yet. First I have to calibrate the equipment.
What does "calibrate" mean?
Well, to calibrate the seeder, I make 2 adjustments on it. First I set the size of the opening here so that only 1 corn kernel can fall through at a time. Next I set the diameter of the cylinder that holds the corn so that the kernels will drop out at 8-inch intervals.


Do you have to calibrate the seeder every time you sow a different kind of seed?
Yes. In fact, to know how much of anything--manure, lime, seeds, or whatever--we should apply to the fields, we figure out the quantities per acre. We have to compute basic amounts every day. And we use other math skills to run this farm, too. We keep track of what it costs us to produce our crops so that when we sell them we can make enough profit to pay for our 2 hired workers, our mortgage on the farm, our taxes, and our day-to-day living needs.
CORN 50#
That sounds like bookkeeping.
Bookkeeping?
That's right, Wes. I was just telling Carol here about some of the math skills we use to run our farm.
Carol, come with me to get Mike, and then up to the house. I'll tell you some more about the skills and tasks necessary for farm management, in the kitchen.
Bookkeeping is essential for us. We have to keep accurate records of the money coming in and money going out. It makes it easier for us to figure out our income taxes, and it helps us figure out what we can afford to grow.
What do you mean?
Well, if we were planting that 5 acres in asparagus instead of seeding it in corn, we'd be putting down $300 worth of asparagus roots instead of $50 worth of corn seed. We'll make about $500 on the corn this year. It would take 3 years for the asparagus to produce a yield, but we'd make $3,000 when it did. Right now, we can't afford to wait 3 years for a return on our money. But we can plan to grow asparagus, maybe in 2 years.


But I thought farmers were given a tax break for losing money.
Yes, the money farmers lose each year can be taken off their income taxes, for the first 5 years. But the 4 of us on this farm just don't feel comfortable losing money on top of being in debt, so we run our finances differently from the way most farmers around here do. For instance, we plan to pay off our mortgage quickly, and we always buy used equipment we can pay for instead of borrowing money from the bank to buy new equipment.
It sounds like you have to watch your money pretty carefully.
We do. And right now 2 of us have outside jobs to help support the farm. Benita teaches English to Spanish-speaking students in night school, and Dick's a computer programmer for IOM.
What's cooking, Wes? It sure smells good!
That's my homemade pea casserole.
Come help me set the table, Carol.
So I'll be working up here in the office the rest of the day. I have to send out some letters to suppliers and pay some bills. Also, I want to look over the new catalogs we got last week.
Come with me to the packing house, Carol.


I've seen the barn, the fields, and the office up at the house. Besides the packing house here, are there any other places where you work?
Well, we have a small garage where we store some equipment. We work in the truck, on the road, and at vegetable markets and stores. Most of our work, though, is right here on the farm, rain or shine. Now all the peas are packaged. I'll drive Our Blue Bomb over here and load up. Will you tell Dick we're ready to go?
Sure, and I'll say goodbye to everyone else before I ride back to town with you.
I can see lots of advantages in being an organic farmer. You're not exposed to large quantities of toxic chemicals, the air and water on the farm are cleaner than in town, and you sure get lots of exercise and good food. Are there any hazards in your work?
Yep. The weather can be a hazard when it destroys your crops. And driving in the rain is a hazard. In fact, working around machinery, like we do, always demands caution. And even organic pesticides can be hazardous in large quantities, especially to people who have allergies.
It stopped raining! And here's the Farmers' Market.
Well, I don't have allergies, and I really like the kind of work I saw today. How could I get training to become an organic farmer?
Well, to learn management skills, you could work in a small retail store that buys and sells produce, or in the produce section of a supermarket. You could also learn management skills at an agricultural college. You can learn how to grow crops organically in your own garden. Working on a truck farm, you'll learn how important discipline is.
What do you mean?


Farming is not a 9-to-5 job. There are long stretches of very boring work, in the sun or in the rain.
I hadn't thought of that. You seemed to be having such a good time at your work today.
Our work isn't glamorous, and it's not easy, but we share most tasks and responsibilities. And we sure do like what we do.
JOHNSON — MARGO FARM
I like it too. After school's over, I'd like to talk to you about a job for the summer.
Good!
We'll be seeing you then.
These snow peas look delicious! How much are they?
Ninety-five cents a pound, and they taste as good as they look. Try one.
I'll take 3 pounds.
I'll have 4 pounds of peas, please.
How much are the gorgeous peas?
Oh, look! Peas!
I learned so much today from "Shadowing"! Now I'll write about it in my "Mission Information" report.

ORGANIC TRUCK FARMER REPORT

1. Name 3 skills and tasks an organic truck farmer performs on the job.

(1)______________________________

(2)______________________________

(3)______________________________

2. Name 3 tools or pieces of equipment and one on-the-job use for each.

(1)_______________ _______________

(2)_______________ _______________

(3)_______________ _______________

3. Name 3 math skills used on the job.

(1)______________________________

(2)______________________________

(3)______________________________

4. Name 2 kinds of things an organic truck farmer might read.(Look on pages 49 and 53.

(1)_______________ (2)_______________

5. Organic truck farmers use other skills that can be learned in school.
Name 2 of them.

(1)_______________ (2)_______________

6. Name 3 places where an organic truck farmer might be found at work. (See page 54.)

(1)_______________ (3)_______________

(2)_______________

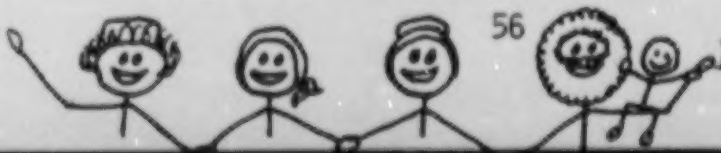
7. Name 3 places where a person might get training to become an organic truck farmer.

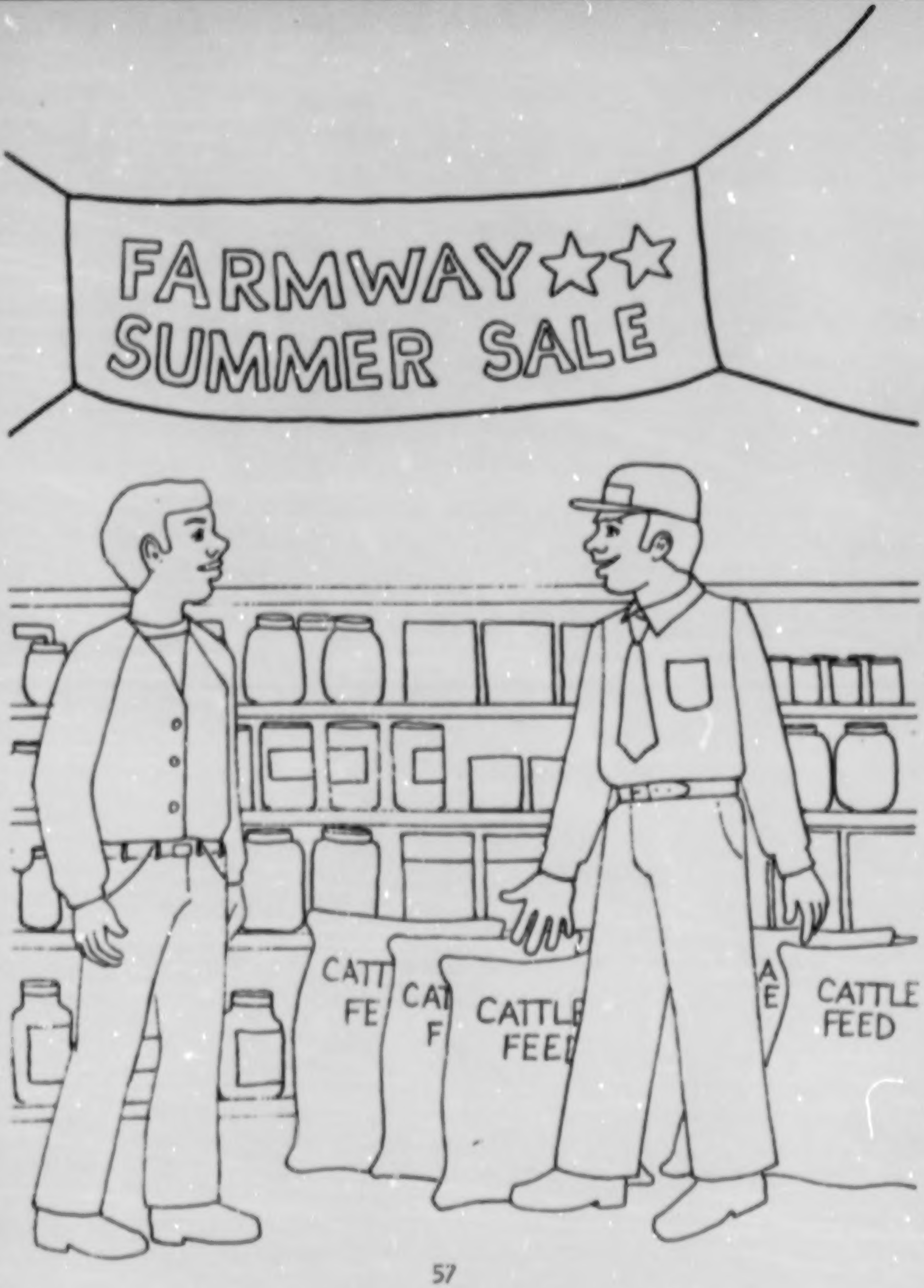
(1)_______________ (3)_______________

(2)_______________

8. Working conditions of an organic truck farmer are discussed on page
List 2 advantages and 2 hazards.

ADVANTAGES	HAZARDS
(1)_______________	(1)_______________
(2)_______________	(2)_______________




FARMWAY
SUMMER SALE
CATTLE FEED
CATTLE FEED
CATTLE FEED
CATTLE FEED

FARM CO-OP MANAGER

Mark: Hello, Mr. Lyons. Thank you for taking the time to talk with me. I know you're very busy here at Farmway Feeds and Supplies.

Mr. Lyons: Oh, that's all right Mark. We are very busy selling all kinds of things: feeds and grains for animals, seeds and garden plants, fertilizers, lawn mowers, cooking grills, work boots and jackets, fuel oils for home heating, appliances, canning supplies, repair or replacement parts for farm equipment, and just about anything you can name that would be used on the farm or in the home. Farmway is a big company and has many stores throughout the state. Because Farmway is so big, it can buy goods in large quantities and pass the savings on to the customer.

Mark: That sounds like a good deal! But what makes this a co-op?

Mr. Lyons: Well, Mark, Farmway started out as a co-op more than 40 years ago when a group of farmers got together and bought a train car full of grain. Then each farmer took a portion and paid for that amount. Each time these farmers needed grain or seeds they would buy in bulk and share the costs. Eventually the co-op got bigger and supplied more and more items. The farmers decided to sell stock in the company and each farmer bought shares of stock. Today the co-op aspect of Farmway is still alive. During the year Farmway offers bulk buying of many different things: paper products (tissues, paper towels, napkins), fresh fruit (grapefruit, oranges), and frozen foods (strawberries, blueberries, pizza, orange juice). Customers preorder the merchandise and arrange to pick it up on a specified delivery date.

Mark: So buying in bulk can pay off for the customer?

Mr. Lyons: That's right, Mark. What can I tell you about next?

Mark: You have a pretty important job here. How did you get to be a manager at Farmway?

Mr. Lyons: It was easy. I lived on a farm as a youngster so I knew about this company. After high school I got a job with Farmway driving a petroleum delivery truck. That was OK for a couple of years but I wanted more responsibility, something that would lead to higher pay. So I went back to school for courses in retail business. The Farmway company sent me to a different store as a trainee. During summers and vacations I continued to take courses, often paid for by Farmway, sometimes paid for by me. The next step was as a trainee manager, which meant another move to a different location. Then I finally became a full manager with a store of my own. I still continue to take courses on vacation time to keep up with new ideas in management. I also have a special degree in Turf Management. That means I know all about lawns and landscaping and can help my customers with planning and planting or with any problems they might have.

Mark: Gee, I didn't know you had to have that much schooling.

Mr. Lyons: Oh, it wasn't so bad, Mark. Sometimes the courses were only three weeks long, sometimes six weeks. But they were intensive weeks.

Mark: Now that I've asked you all about your training, I'd like to know what you do at work all day long.

Mr. Lyons: Well, Mark, I'm ultimately responsible for everything that goes on in this store. Personnel handling is one of the biggest parts of my job. I hire employees to work in the store to stock shelves and keep them clean, to run the cash register, carry heavy bags to customer's cars, and price the stock. If employees work well, I will encourage them to try to advance. If they don't work out I'm also the one who has to fire them. Advertising is another big part of my job. The company helps me with advertising by supplying me with advertising layout as much as seven months in advance. That way I know which products will be on sale and when they will be on sale. Then I choose which specials to advertise in the newspapers and I send the ads into the papers. I must also make sure I have enough inventory on hand so I don't run out during a sale. When an item is on special, I try to give it a special display place in the store. I delegate this work to one of the store clerks, but I am the one who has to say where it should go to attract the most customers.

Mark: Holy cow!

Mr. Lyons: And that's not all: some inventory, or stock, is seasonal. One of my jobs is to order merchandise or stock in advance so that it's available before the season begins. I have summer stock on the shelves as early as March. By the time July is here, I start bringing in fall merchandise. So you see, I do a lot of planning on my job. I try to keep sales volume up by offering items my customers need and want. If sales drop, I'm in trouble. I have to change the store layout or offer some special sales to draw customers into the store.

Mark: What's the hardest part of your job?

Mr. Lyons: The trickiest, most difficult part of my job is customer relations. I try to keep all the customers happy. If they buy a faulty item, I must give them fair exchange or their money back. Sometimes the customer is not right,but I have to handle them carefully anyway so that they will be satisfied and I don't loose their business. When customers apply for credit, I am the person who checks to see if they're good risks. I must then reject or accept their credit applications.

Mark: Do you spend most of your time in this office?

Mr. Lyons: Oh, no. I don't just sit in this nice office all day. Sometimes I'm out on the floor helping the customers. Sometimes I'm even out in the trucks with the delivery workers. Sometimes I'm even out in the field--checking on products we've sold, like the seeds and plants or even animal feeds. I also work closely with cooperative extension agents in this county and we share information each of us has learned. Many times I attend meetings with people who have the same interests: farming, planting, anything to do with agriculture.

Mark: Now that I know what you do on the job and where you work, I'd like to know what your tools or pieces of equipment are and what they are used for.

Mr. Lyons: That's a little difficult, Mark. I don't have many specific tools for my job. Oh, I guess you could say that the telephone is one tool and I do use it quite often during the day. The same goes for my pen. I might use a cash register sometimes if the store gets really busy. I also have special newsletters and magazines sent to me that are helpful in my business. But I feel that my main tools are my education and my ability to get along with people. My schooling, especially my special degree in Turf Management, is a big asset because I need a wide background of knowledge to help my customers in choosing the right items to solve problems with their animals or their crops or their lawns. If I don't know the answers, I must know where to get the answers. And getting along with people is an important tool because in order for Farmway to run well, the customers and the employees have to be happy and satisfied.

Mark: Gee, Mr. Lyons, it seems like you have to know a little bit about everything. How do you do it?

Mr. Lyons: Well, Mark, you know how your teachers are always telling you to read? Well, reading is a big part of my job. Along with reading the publications I receive and the advertisements I send out, I must also be able to read and understand receiving invoices, freight bill of ladings (both truck and train), and charts and graphs. I am also responsible for filling in all kinds of forms. And I must be able to read these before I can fill them in. For example, I fill in payroll sheets and insurance forms and environmental protection forms (to show that Farmway complies with current environmental regulations). And math is important too because I have to understand bills and rates and also taxes. And knowing percentages and mark-ups helps too.

Mark: Mr. Lyons, I have one last question. What are your working conditions like? Are there any risks or hazards?

Mr. Lyons: You know, Mark, I really don't think there are any risks or hazards. I have a pleasant office to work in. The store is heated in the winter and cooled in the summer. This is a clean and pleasant place to work. The company supplies coffee for all the employees, a refrigerator to store lunches in, and a rest area where we can eat or take a break. And we all get health insurance, a retirement plan, and liberal vacation time. So you see, even though I have a lot of responsibility and a lot of different jobs in one day, I really like my work and enjoy doing a good job.

Mark: Thanks for this interview, Mr. Lyons. You've helped me to see what goes on behind the scenes here. You have the kind of job I would like for myself in a few years.

Mr. Lyons: It was my pleasure, Mark. Do well in school and come and see me when you are ready to start work. I'll see if there are any positions open then. Meantime you are welcome to come into the store any time as a customer.

Co-op Quiz

FARM CO-OP MANAGER

Describe 2 places where Mr. Lyons got the training he needed to become a Farmway manager. (Look on page 58.)

1) ____

2) ____

What are 3 skills or on-the-job tasks which Mr. Lyons performs at Farmway?

1) ____

2) ____

3) ____

What are 2 places where you might find Mr. Lyons at work? (See page 60.)

1) ____________________ 2) ____________________

What are 3 tools or pieces of equipment that Mr. Lyons uses on the job? How is each used? (See pages 60 and 61.)

	TOOLS	USES
1)		
2)		
3)		

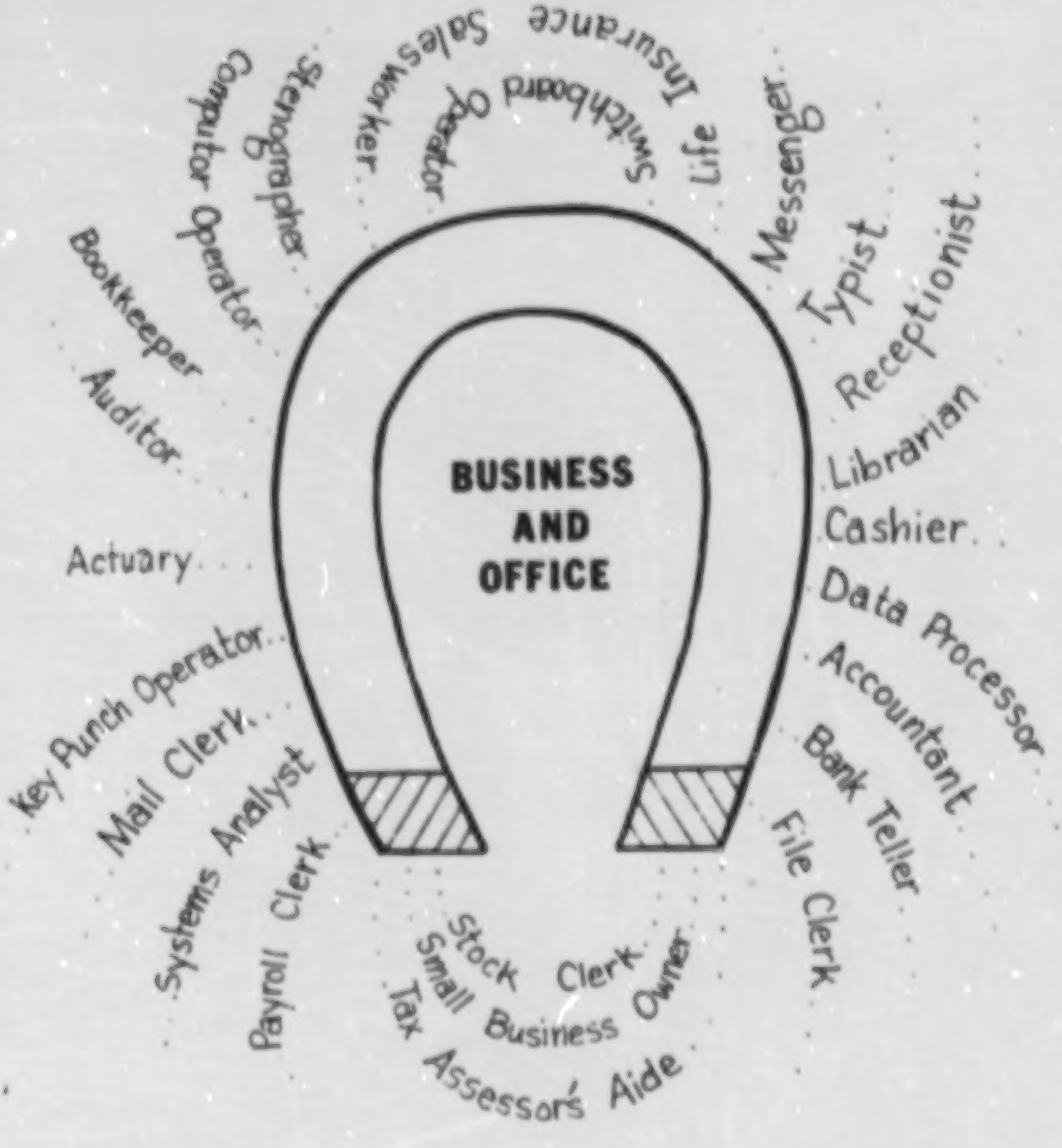
How do reading and math skills come in handy for a farm co-op manager? (See page 61.)

reading ____

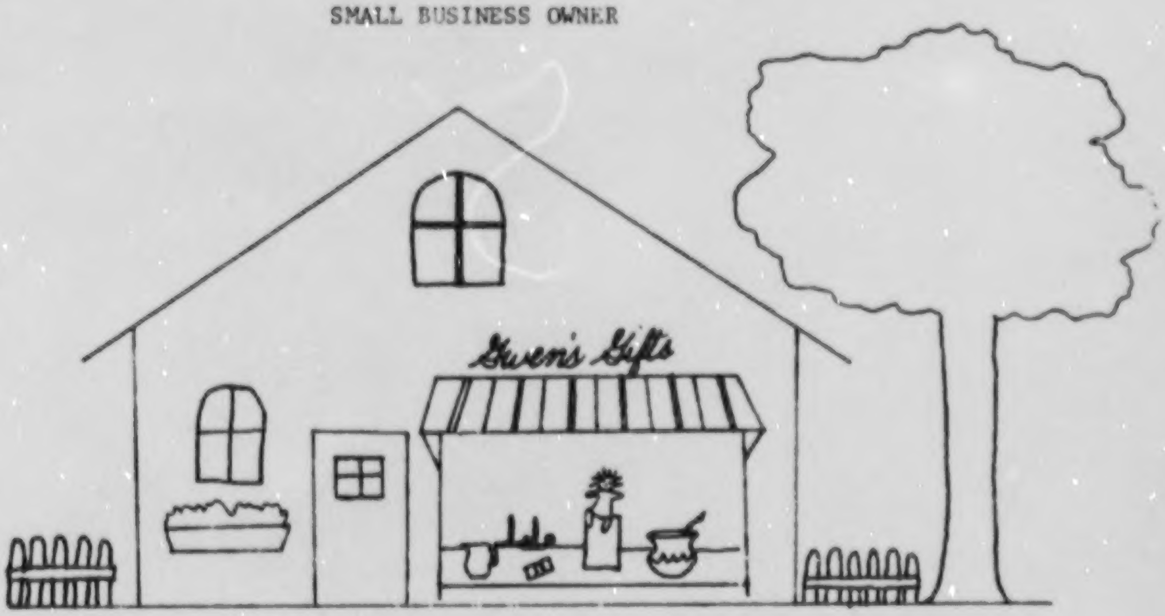
math ____

Mr. Lyons talks a little about the working conditions at the co-op. What is one of the benefits he mentions. (Look on page 61.)

____


BUSINESS AND OFFICE
Actuary
Auditor
Bookkeeper
Computer Operator
Stenographer
Sales Worker
Switchboard Operator
Life Insurance
Messenger
Typist
Receptionist
Librarian
Cashier
Data Processor
Accountant
Bank Teller
File Clerk
Stock Clerk
Small Business Owner
Tax Assessor's Aide
Payroll Clerk
Systems Analyst
Mail Clerk
Key Punch Operator

SMALL BUSINESS OWNER



Owning a small business is a big job, you see.
The success of the shop is my responsibility.
First I found a store location, put in counters and shelves,
Then I ordered attractive merchandise to please my clientele.

Talking to customers all day long takes a bit of a knack,
And with some hard-to-please consumers, I need a lot of tact.
For the motto of the shop keeper is, "The customer is always right."
So I try to be nice to everyone, and never get into a fight.

Another task of mine is to train the people I hire.
They must know merchandise and prices, to find what customers desire.
I teach them the things that I usually do
Like restocking shelves and taking inventory of items, old and new.

If you want to open shop, what kind of training do you need?
Well, you can't be a shop owner based just on what you read.
Though schooling is helpful, experience is best,
And being business minded will "feather your nest."
Be good with numbers, be good with people too.
Merchandise, sales style and shop design are all left up to you.

It's handy for a shop keeper to have a variety of skills.
Being part-time carpenter, plumber, and electrician will lower your bills.
A shop owner is also a janitor, because a store must be kept clean.
Glass cases should be free from fingerprints, so items can be seen.

Reading is a skill you must be up to;
This way, you'll keep up with trends and everything that's new.
Pick up your pen for the forms you'll be filling out;
Tax forms, order forms, and business certificates you'll have to know about.

Now we come to tools, and a shop owner needs plenty:
Assorted racks, and lots of shelves (I have over twenty);
A cash register or adding machine to fill obvious needs;
Paper, file cabinets, and catalogs to give you business leads.

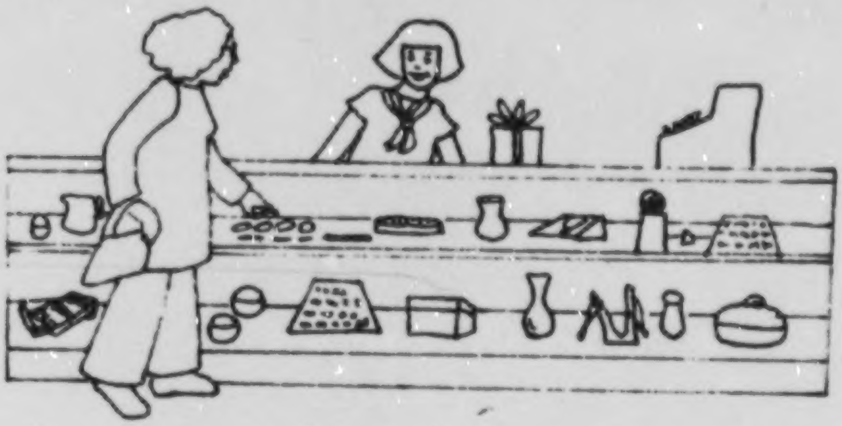
Another important item that every shop owner considers
Is a burglar alarm turned on at night to keep out unwanted visitors.
Theft and vandalism can cost you quite a price;
Protection when you're not at work is something mighty nice.

Capital, if you don't already know,
Is the most important tool you need to make your business grow.
It's the money that you use at first to set up shop.
Yes, capital means money, and at first you need a lot.

An important factor that will help you to succeed
Is a good shop location. It's really what you need.
All the merchandise in the world may all go to waste
If the customers you might have had could never find your place.
That's where advertising comes in handy; it lets the public know
Where you are and what you sell, as your increased profits will show.

Now, you may be wondering how much a successful shop owner makes.
After seven years my salary's twenty grand, but I've had some lucky breaks.
I must admit, that in my first year, I didn't make a cent.
The profits went into merchandise and paying monthly rent.

Obviously, a business of one's own isn't all peaches and cream.
Working day and night is par, and sometimes money's lean.
But the rewards of owning one's own business can be great,
Especially if working for another is what you hate.
You make your own hours, decide what to sell,
And if you're energetic and wise, all should go well.



Quiz Whiz

SMALL BUSINESS OWNER

Small business owners all work to succeed, not to flop.
Gwen's place of business is her own ______________________.

Gwen tells of the skills and tasks which help her business to grow.
Name 3 of them now in the spaces below.

____

____

____

Gwen describes the best training for this work in one word: ____________________

The tools and equipment that Gwen seems to need
Should be named in the spaces below.
It shouldn't be hard, just carefully read.
She mentions quite a few, so write down 3 in the spaces below.

TOOLS	USES
1) ____________________	______________________________
2) ____________________	______________________________
3) ____________________	______________________________

Small business owners all practice reading and math.
On the way to success, these skills help to form a path.
In the spaces below, describe how each skill comes in handy
In any business from selling land to selling candy.

math ____

reading ____

In order to answer this last rhyme,
Describe Gwen's working conditions in terms of on-the-job time.

____

THE STOCK CLERK STORY
Muriel McCoy Interviews James Padern

Muriel: Hi. I'm Muriel McCoy. I called earlier to make an appointment for an interview. You must be Mr. James Padern, the managing night stock clerk.

James: Yes, that's me. I've been a stock clerk here for nearly thirty years.

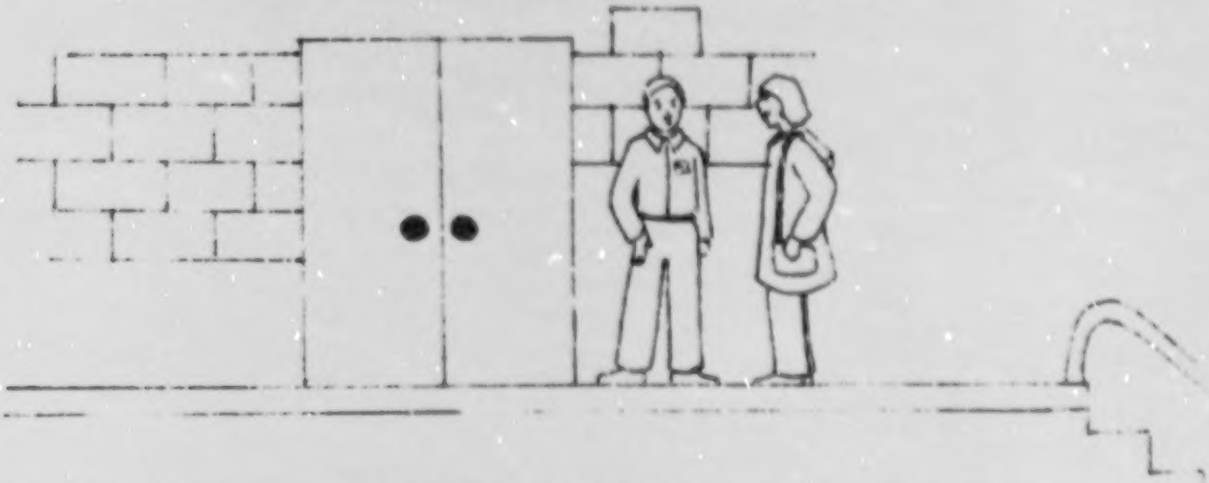
Muriel: Thirty years? Gee, you must have been my age when you started.

James: Yes, you might say I've grown with the Good Foods Company. I started out as a part-time stock clerk when I was a high school kid, over in the Martinville store. That's the next town over. Now I'm the night-crew stock clerk manager here in Jackson. Most people think a stock clerk is just a job for high school kids--not a real important job, and not very well paid. Maybe that's true in some small stores, but not in a place like this where we serve thousands of people in a day. We have stock clerks working in shifts twenty-four hours a day. It's a big job, and well, if the pay wasn't good, I wouldn't be here.

Muriel: Would you mind if I asked you some questions about what a stock clerk does on the job?

James: Wouldn't mind at all. Let me take you on a tour of the store. I'll tell you what the job's about, introduce you to some of the stock clerks, and show you the tools and equipment we use on the job.

Muriel: What's this concrete landing we're standing on? Do you work out here?



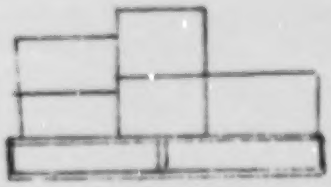
James: This is the loading dock where the trucks come in daily from three warehouses owned by Good Foods. These trucks deliver almost all the items we sell. Day-crew stock clerks unload these trucks and divide the items according to which aisle they belong in. This way, everything is ready for the night crew who "pack out" the aisles.

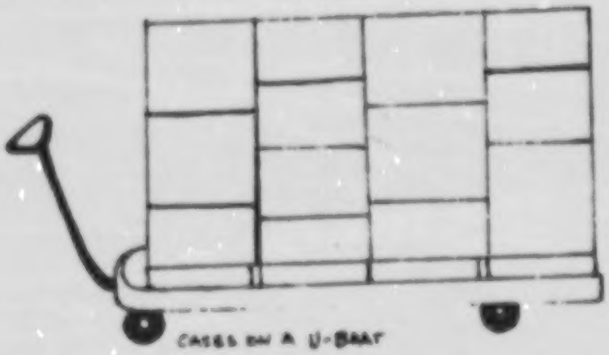
Muriel: What does "packing out" the aisles mean?

James: That means we take the cases into the store and put the merchandise or "stock" on the shelves.

Muriel: What kinds of tools and equipment do you use to "pack out" the aisles?

James: See these low, wide crates made of rough oak? They're called "skids." Cases of goods come stacked on the skids. Then we use hydraulic jacks to lift all the cases onto a U-boat like this one here.

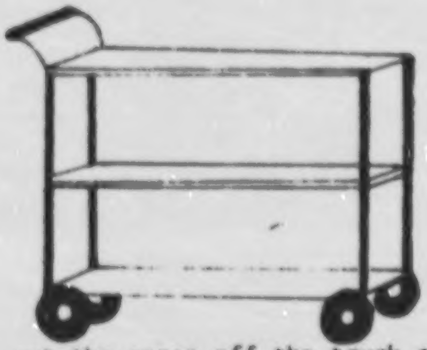

CASES ON A SKID


CASES ON A U-BOAT

It's called a U-boat because it's shaped like a long "U" with a handle on the end. It's made of metal so that it can hold over a ton of merchandise. It has wheels under it to make the pulling easier. It takes a lot of stamina to pull these heavy U-boats around.

Muriel: Does that mean that only men are hired to do this sort of work?

James: Oh, no. Anyone who's in good shape can handle the job. U-boats are essential in a store this size because so many cases of stock must be brought onto the floor each night. A small supermarket might use dollies or hand trucks to move the cases around on, but a U-boat can move many more cases at once. When the U-boat is full, we pull it into the store in the correct aisle. Then, the cases are taken off and put onto smaller carts called "produce flats." We use a "cutter" to open the cases and a labelling gun to price the items.


PRODUCE FLAT

Muriel: So that's how you get the cases off the truck and onto the shelves!

James: Well, stock clerks do a lot more too. Most of our day crew are part-time workers. They restock items as needed during the day, keep the shelves in order, rebuild displays, set up carriages of stock (wire baskets filled with goods for the customer to buy), and they also do some of the packing at the checkout counter. Then, of course, after a sale has ended, prices have to be changed. Stock clerks use a price-change cart to do this.

Muriel: You must have full time workers to do these things too, right?

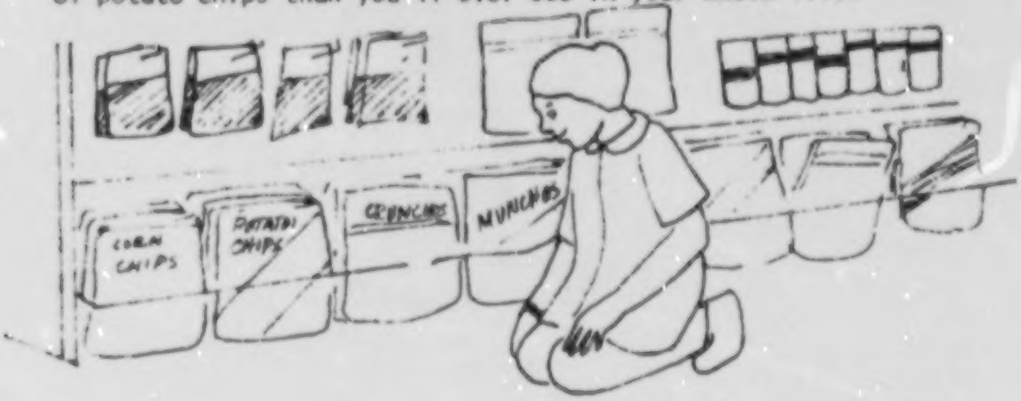
James: Right. All of our night crew work full time. Night stock clerks have quotas to fill. That means we each have to move two hundred cases of stock in a night. Any stock clerk who can not keep up with the quota after the first thirty days must look for another job. Night clerks also have to do all the stock ordering, and they must keep an inventory of what's "in stock," or in the store.

Muriel: How does a stock clerk know how much to order?

James: Stock clerks must figure out how much of an item will sell over a three-day period, based on how much has sold in the past. Since we're ordering in advance, we've got to keep on our toes and use our heads to do some basic arithmetic on this job.

Muriel: Gee, there's more to this job than just stacking stock! If a stock clerk has to order merchandise as well as stack it on the shelves, then a stock clerk is a pretty important person around here.

James: Oh, yes. Let me take you inside. This is Jane Rosen. She spends about four hours in the refreshment aisle every night. She's seen more bags of potato chips than you'll ever see in your whole life.



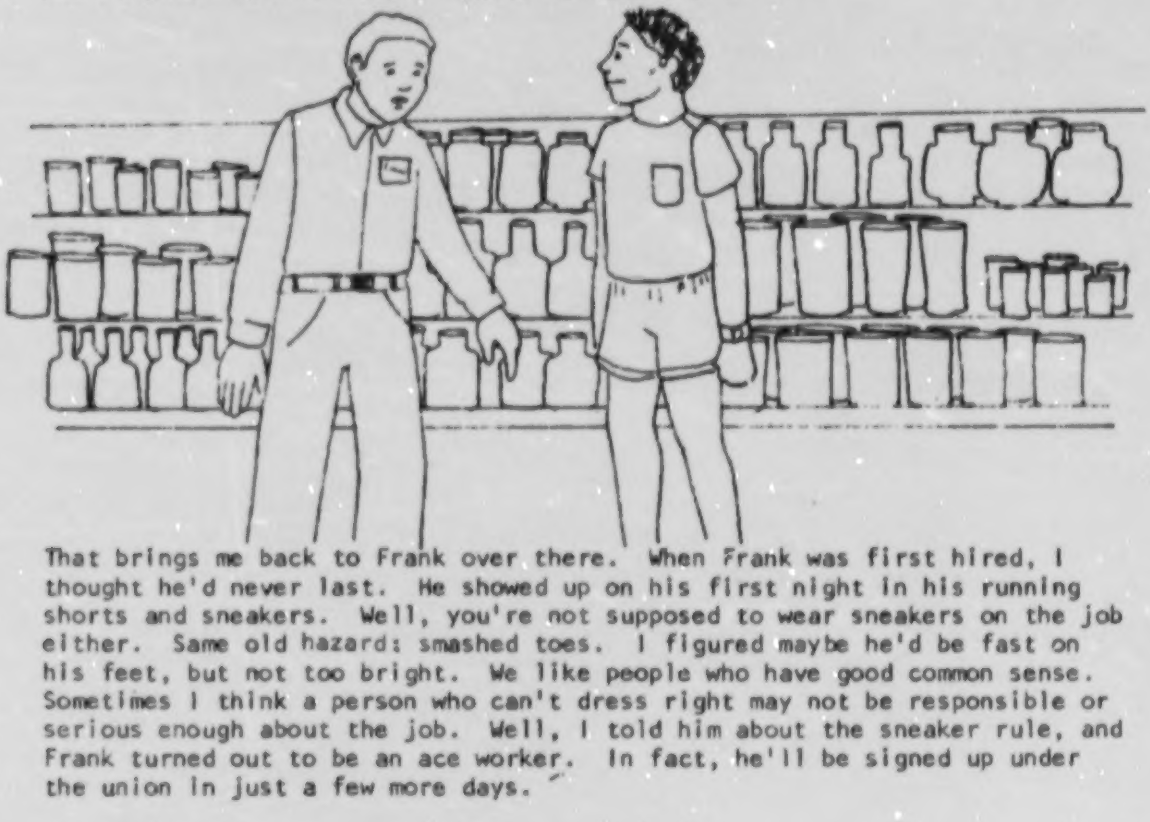
Her job is to keep this area stocked, neat, and tidy. She orders all the items you see here, and she keeps an inventory of them. You see, every stock clerk can do any one of the tasks I've described to you, but most of them specialize in one thing, or work in just one area of the store. Jane's responsible for this aisle, and it's a big job.

Muriel: I noticed the sign outside for a big potato chip sale. Who sets up the displays here? Is one person in charge of that?

James: Yes. Over there is Frank Dobbs. He sets up displays in the front of the store. He's also the best stacker I've ever had. Boxes of cookies, cans of vegetables, jars of jam...he stacks them all up neatly and fast.

Muriel: If I wanted a job here, what kind of experience would you recommend I get first?

James: When people come in here for jobs, they don't need any experience. In fact, sometimes it's best if they've never been a stock clerk before. That way, we can train them to fit the store. That's called getting on-the-job training. People must be able to read to get a job here, so that they can do inventory and make orders. And arithmetic is useful since you have to know how many items should go out on the floor, and how many items to reorder. Let's face it, if you can't count, you can't be a stock clerk. And a stock clerk has to look nice, you know, neat and clean. You can wear blue jeans on the job here, as long as you look neat. Safety-wise, closed shoes are a must, to protect feet from falling cans and jars. That's probably the biggest hazard here: occasional squashed toes and maybe a little pickle juice spilled on your pants now and then.



That brings me back to Frank over there. When Frank was first hired, I thought he'd never last. He showed up on his first night in his running shorts and sneakers. Well, you're not supposed to wear sneakers on the job either. Same old hazard: smashed toes. I figured maybe he'd be fast on his feet, but not too bright. We like people who have good common sense. Sometimes I think a person who can't dress right may not be responsible or serious enough about the job. Well, I told him about the sneaker rule, and Frank turned out to be an ace worker. In fact, he'll be signed up under the union in just a few more days.

Muriel: Stock clerks who work here belong to a union?

James: Yes. After thirty days, if full-time stock clerks are doing a good job, they can join the union. If they do, they get lots of benefits like medical insurance, maternity leave, sick days, holidays, and personal days. The union even covers employee grievances. That means it represents employees who have complaints against the management. And the store covers disabled employees. So you see, workers here have it pretty good. A worker who's been here six months gets a week's paid vacation. And the longer you work here, the longer your paid vacation lasts. In the summer, the store is air conditioned, and in the winter it's heated.

Muriel: This job is sounding better and better by the minute. How's the pay?

James: The pay is good, too. A part-time stock clerk earns minimum wage to start, but after only a month, gets a raise. Part-time stock clerks can make up to $7.50 an hour. Full-time stock clerks do even better: $5.25 an hour to start, or $5.50 on night crew. And a full-time night clerk who manages the floor can make as much as $8.80 an hour. That's me.

Muriel: How does a person advance to a managerial or executive position?

James: Well, now if I wanted, and had the ability, I could advance to almost any position in Good Foods. Formal education doesn't matter too much for jobs within the store; it's really experience that counts here. Of course, a person interested in managing a store would find business courses very helpful, but it's not required by the company. Actually, the only thing I can think of that requires lots of special training is computer work. More and more computers are being used in the food store business these days.

Muriel: Well, Mr. Padern, it sounds like you really like your job. Thanks so much for the interview and the guided tour. I've really learned a lot about how a supermarket runs, and just how important a stock clerk is.

James: Yes, my job is pretty important, and I'm happy here. Guess I'll keep this job. Besides, I have a month's paid vacation coming up!

EMPLOYEES
ONLY

Can You Answer These?

STOCK CLERK

Describe 3 of a stock clerk's on-the-job skills and tasks.

1) ______________________________

2) ______________________________

3) ______________________________

Where can stock clerks be found at work?

____

James describes quite a few of the tools and pieces of equipment used by stock clerks on pages 68 and 69. Name 3 of these tools and describe one use for each.

TOOLS	USES
______________	______________
______________	______________
______________	______________

What kind of training do stock clerks need? (Check on page 70.)

____

How do stock clerks use math and reading skills on the job?

math______________________________

reading______________________________

Toward the end of the interview, James describes some hazards and benefits of being a stock clerk at Good Foods. Name one of each.

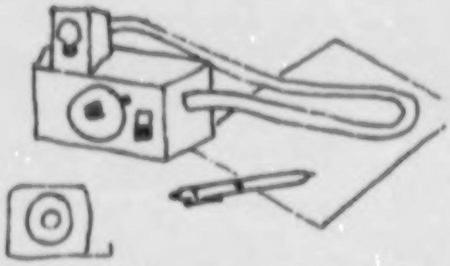
hazard______________________________

benefit______________________________

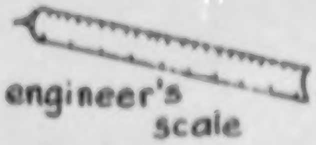
TAX ASSESSOR'S AIDE

A Tax Assessor's Aide collects and keeps track of information about land and buildings, or property. The information includes size, location, neighborhood, and practical use of the property. The Tax Assessor uses this information to figure out the value of the property. The Tax Assessor then decides how much money, or tax, property owners should pay, according to the value of their land and buildings.

Tax Assessor's Aides spend about 10% of their work time in the field, where they gather information. But most of an Aide's time is spent in an office, performing other skills and tasks.

SKILLS AND TASKS	TOOLS AND EQUIPMENT
Gather information.	
take pictures of land and buildings	camera
measure buildings	tape measure
write down detailed information about interiors and exteriors of buildings	paper and pen
Organize information.	
code information according to standards set by the state	reference books, like *State Manual for Assessors* and *State Cost Manual*
figure out square footage and acreage, write it on property record cards	calculator, paper and pen
decide on exact boundaries and ownership of property by reading property deeds	property deeds, law books

TAX ASSESSOR'S AIDE
(continued)

SKILLS AND TASKS	TOOLS AND EQUIPMENT
Store and keep track of information.	
draw lines on tax maps	tax maps (not legal maps, since they're drawn using only information written on deeds), ruler, engineer's scale, protractor, land measure compass, property deeds tax map land measure compass
project soil conditions onto tax maps in order to figure out the practical use of the land	soil maps (show swampy areas, poor drainage areas, slopes, etc.) 
feed all information into computer	computer terminal, computer tape, keypunch machine
Keep all information up-to-date.	
read and file deeds which change hands through sale of property	records (like property deeds, deed transfers, tax exemption forms), file cabinets
keep tax assessment rolls up-to-date (address changes, code changes, value changes, demolitions, new construction, etc.)	records, file cabinets
Carry out all other general office duties.	
type and file copies of all letters and reports	typewriter, file cabinet, reports, notices
answer phone, greet public, handle complaints	telephone, outgoing personality
keep accurate records of all transactions	records, property deeds, public correspondence, legal notices

TAX ASSESSOR'S AIDE
(continued)

WORK CONDITIONS

HAZARDS: Stress (from misunderstandings with taxpayers, lack of physical activity on the job, dogs in the field)

ADVANTAGES: Meeting lots of people, steady work routine, fringe benefits (paid vacations, sick time, personal days, health insurance)

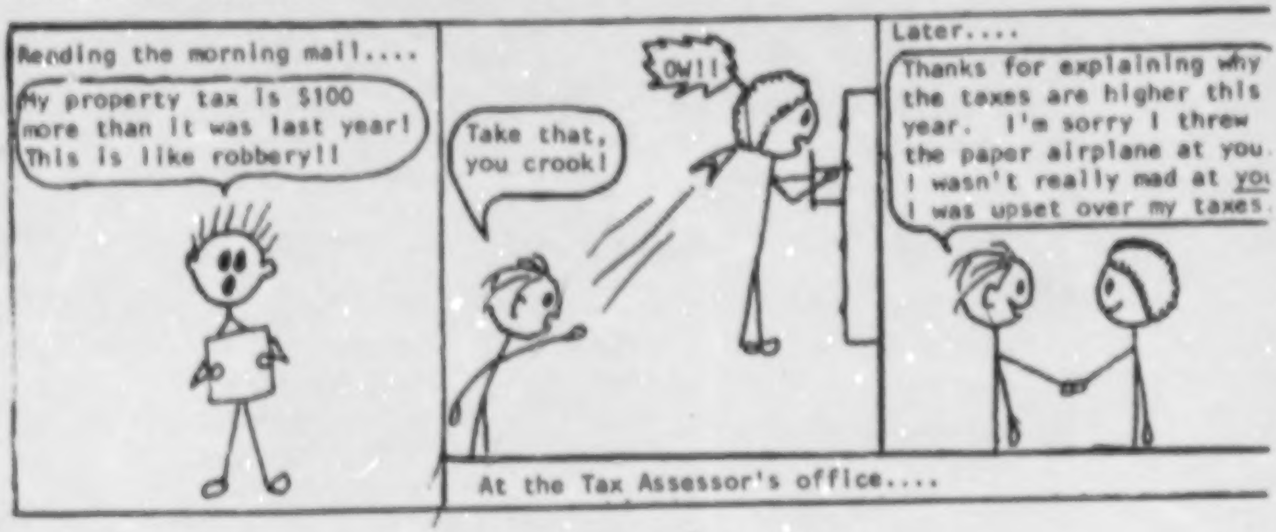
READING AND MATH SKILLS NEEDED ON THE JOB

READING: Ability to read, understand, and interpret the following: correspondence and complaints from the general public, legal opinions from the state, property deeds, law books, reference books like State Training Manual

MATH: Ability to calculate square footage and acreage, do bookkeeping, multiply, divide add, subtract, use algebra to solve problems, convert old methods of measurement (like chains, links, and rods) into feet and miles, plot deeds and draw tax maps

OTHER SKILLS NEEDED ON THE JOB

Letter writing, public speaking, public relations (getting along with people, listening to complaints from irate taxpayers and not taking their anger personally), interpreting state laws to people, understanding of geography, geology, and local history (to interpret old landmarks)


Reading the morning mail....
My property tax is $100 more than it was last year! This is like robbery!!
Take that, you crook!
OW!!
At the Tax Assessor's office....
Later....
Thanks for explaining why the taxes are higher this year. I'm sorry I threw the paper airplane at you. I wasn't really mad at you I was upset over my taxes.

TRAINING NEEDED

BACKGROUND: Some general office skills

ON-THE-JOB: Two, one-week sessions of Assessor's Training; monthly meetings of County Assessor's Association to discuss problems and procedures for handling them, to clarify the use of new forms, new laws, and new systems of assessing property

CHART-A-QUIZ

Begin filling in the chart with 3 skills and tasks and the tools or equipment used to carry out each one. Then complete the rest of the chart.

SKILLS AND TASKS	TOOLS AND EQUIPMENT
1. ____________	____________
2. ____________	____________
3. ____________	____________

WORK PLACES

1. ____________ 2. ____________

WORK CONDITIONS

HAZARDS	ADVANTAGES
1. ____________	1. ____________
2. ____________	2. ____________

KINDS OF THINGS AN ASSESSOR'S AIDE READS ON THE JOB

1. ____________ 2. ____________

MATH SKILLS NEEDED ON THE JOB

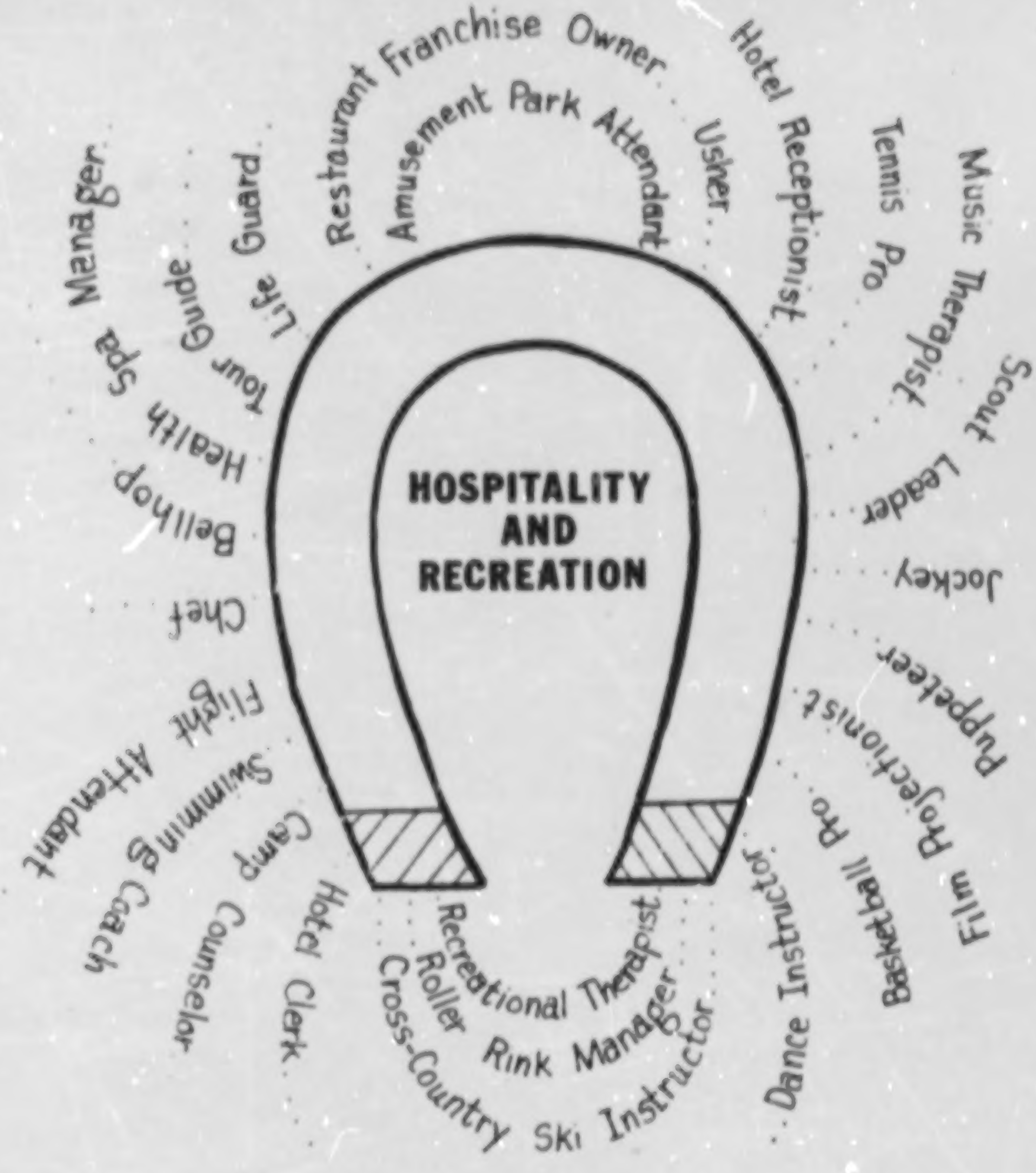
1. ____________ 2. ____________

OTHER ON-THE-JOB SKILLS THAT CAN BE LEARNED IN SCHOOL

1. ____________ 2. ____________

KINDS OF TRAINING

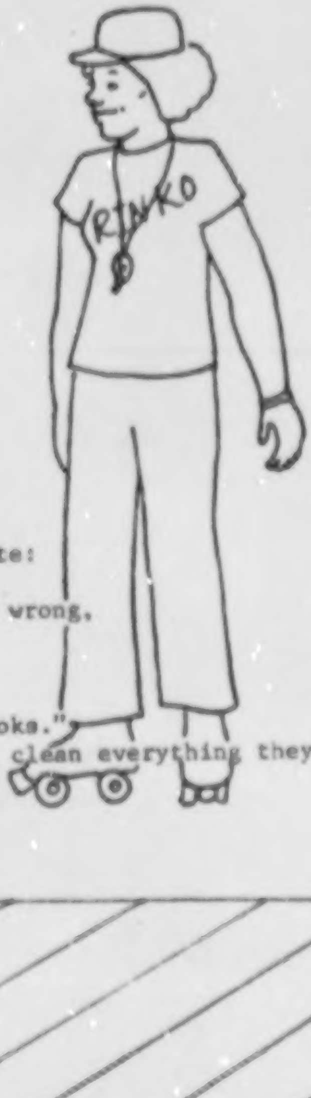
1. ____________ 2. ____________


HOSPITALITY AND RECREATION
Health Spa Manager
Tour Guide
Life Guard
Restaurant Franchise Owner
Amusement Park Attendant
Usher
Hotel Receptionist
Tennis Pro
Music Therapist
Scout Leader
Jockey
Puppeteer
Film Projectionist
Basketball Pro
Dance Instructor
Cross-Country Ski Instructor
Roller Rink Manager
Recreational Therapist
Hotel Clerk
Camp Counselor
Swimming Coach
Flight Attendant
Chef
Bellhop

ROLLER RINK OWNER / MANAGER

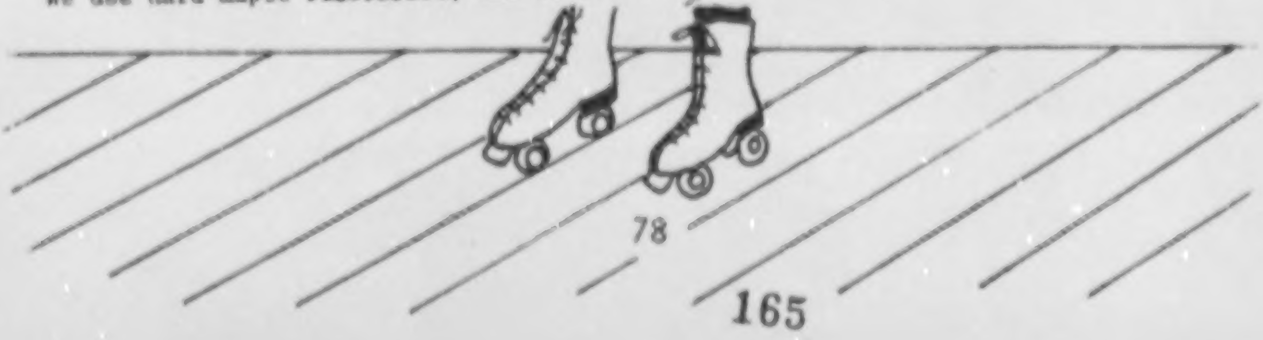
My roller rink is an inexpensive place to go for exercise and fun.
All kinds of people enjoy the place--old folk, and young.
I try to make this place appealing, a good business technique.
I've hired many high school students, which makes this rink unique.
They're flexible about hours, and they're energetic too;
They earn money while they learn, and some earn credit at school.

As manager, to keep things running smoothly and fine,
I must hire coat-check, sales, and rental staff to work part-time,
And rink guards who work to enforce the skating rules.
I choose workers carefully; good employees are as valuable as precious jewels.

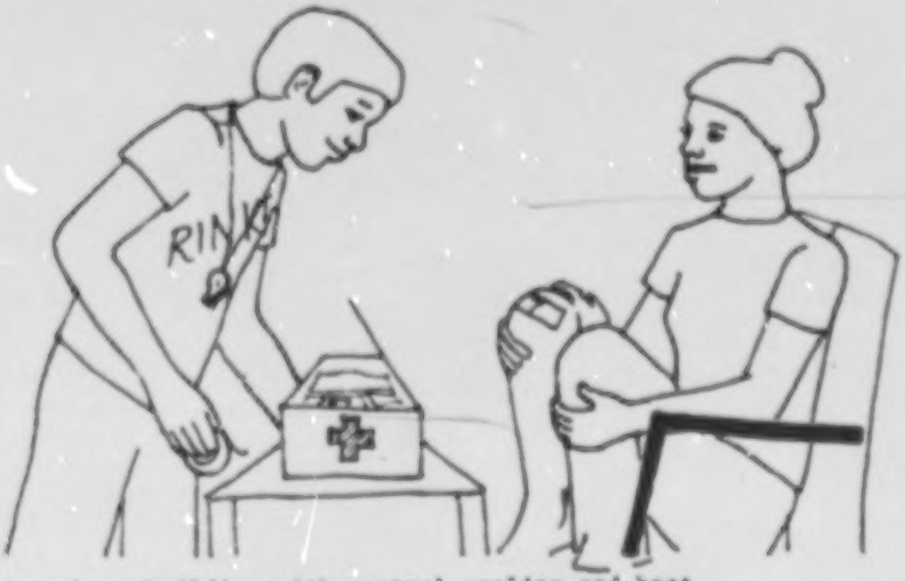


My responsibilities include offering music for every taste:
Salsa, disco, and old fashioned songs.
I also check our supplies, and prevent things from going wrong,
And I figure out ways to eliminate waste.

Economy is important, as all managers will agree.
I watch the money closely, that's called "keeping the books."
And I work closely with maintenance staff who repair and clean everything they see,
Since business often depends on the way a place looks.
The floor itself **doesn't need** much care:
We use hard maple **floorboard**, and we leave it bare.

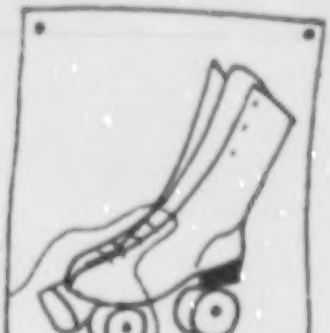


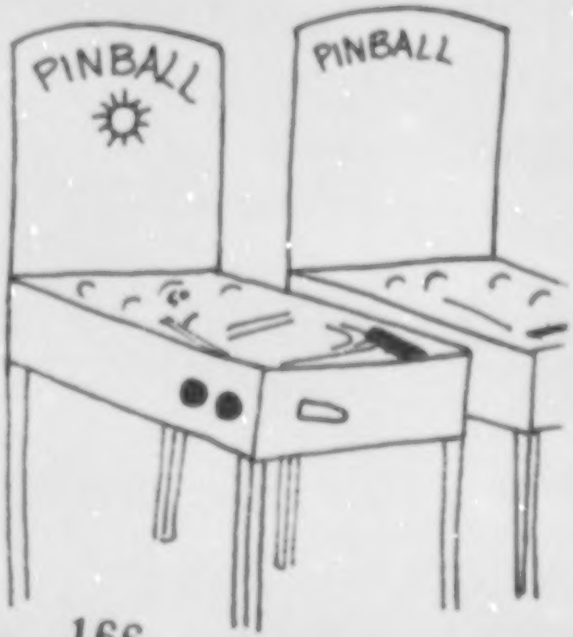
My work is varied. Every night, I check out each work station.
At each spot, I find out what I need to know through conversation.
I cover the ticket booth, the rental booth, the grounds, and the rink.
My job has more to do with people than you might think.
I deal with customer complaints; I try to please them all.
And first-aid skills come in handy if someone takes a bad fall.



This is a huge building with central cooling and heat,
Expensive stereo equipment, and snack food for skaters to eat.
In two years, we've made the profit we've needed to pay
For advertising, and to expand. It's a growing business today.

I had to take out loans before opening this place.
To start, I needed 500 pairs of rental roller skates.
This alone was a big investment at tremendous expense.
Then there were records, booths, benches, and pinball games, which the roller rink rent





Keeping the books at restaurants helped me get the training I need.
Management and business magazines help too. I set aside time each night to read.
I keep up with skating trends through organizations of the "trade."
Roller Skating Rinks Of America is one, the RSROA.
Now, if you want to know how to get a management start,
Study management and business in high school. Take this advice to heart!

The hours here are unusual; I'm free during the day.
I work six or seven nights a week to earn my generous pay.
One drawback is the cost of a high-priced insurance policy;
We're considered quite a risk, as a sports facility.
But the benefits of this job are great, because as you can see,
I love to be around all kinds of people, and business is booming, indeed.

ROLLER RINK OWNER / MANAGER

ANOTHER WHIZ OF A QUIZ

The manager of a roller rink is responsible for more than you might think.
Write at least four tasks that you've read about here;
In the spaces below, let the answers appear.

1) ____________________

2) ____________________

3) ____________________

4) ____________________

This rink owner uses many tools, and some are expensive, you know.
Name at least three of these tools and their uses, here in the spaces below.

	TOOLS	USES
1)	____________	____________
2)	____________	____________
3)	____________	____________

Roller rink managers contribute to the American scene of recreation.
Use the spaces below to name at least two of the manager's work stations.

1) ____________________

2) ____________________

Math and reading are both used on this job. Describe how in the spaces below.

math ____________________

reading ____________________

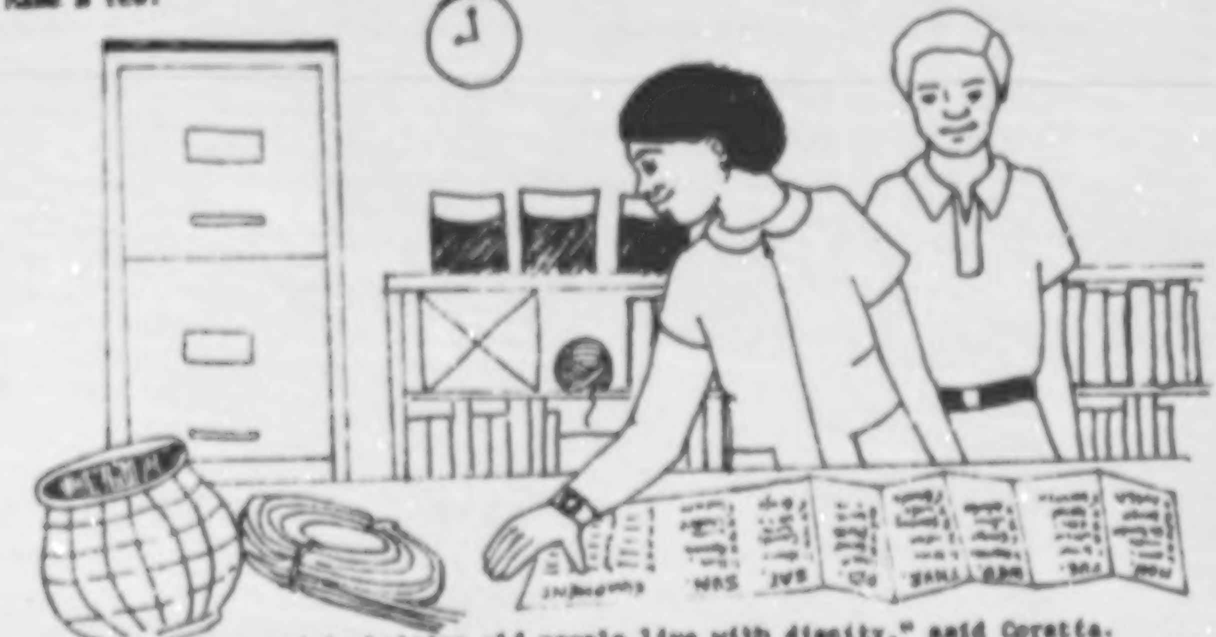
Roller rink managers can get a start on their training as early as high school days.
Mention two ways to get the training you'd need to help you start on your way.

____

____

RECREATIONAL THERAPIST
(a "shadow" report)

I'm Fred Heppell, and I'm a student at Siftown High School. I did my shadowing at the Siftown Nursing Home. When I met Ms. Coretta Williams, the nursing home's recreational therapist, she was in her office making out a schedule of activities for the patients. I was surprised by the variety of things she had planned for that week: cookouts, weaving, bingo, crafts, and sing-alongs, to name a few.



"I'm committed to helping old people live with dignity," said Coretta. "And I do this by helping the patients here to use their leisure time in meaningful ways. Many patients here need lots of medical care. Some feel abandoned by their families, and many of them are depressed. I use all of my skills to get these folks involved with one another, and to help them feel good about themselves. Some patients can really benefit from something as simple as hearing or telling a story. Others benefit by making things to give as gifts. I'll try anything to get the patients here involved in things that give them personal satisfaction."

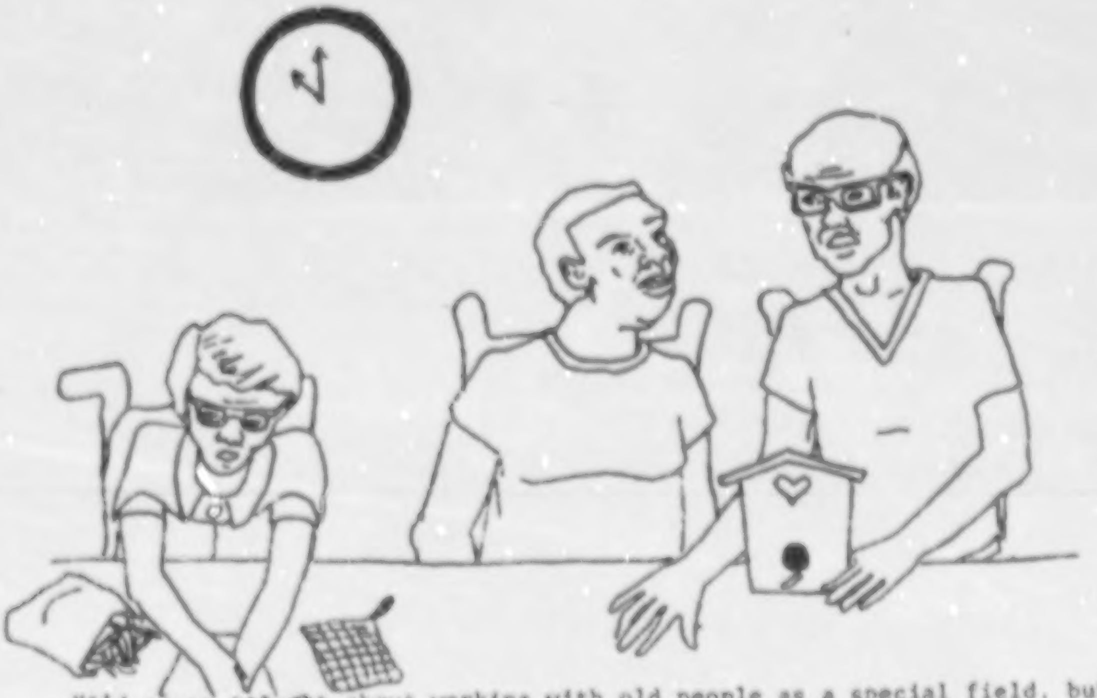
It was time for the first activity session of the day. About 25 men and women came to the recreation room. Some worked at building bird feeders, and others worked at making bead necklaces. Coretta asked two aides to watch and help some patients who were easily frustrated. "Each aide has tried all of these activities blindfolded, with earplugs, and bound to a chair so that they know how it feels to be frustrated by blindness, or deafness, or being stuck in a wheelchair. That's part of the in-service training program I've developed."

"So part of your job is to train the aides?" I asked.

"Yes. Since I'm the recreational director here, I design the activities, and then see that they're carried out properly. That includes helping the aides to do their jobs well."

I took a look around the recreation room. Covetta's "tools" were stacked in different corners of the room: books and magazines with extra large print, craft supplies, games, yarn, a piano. The room was well lighted and clean. All of the patients were busy, but they weren't all doing the same thing. I asked Coretta how she organized all this.

"Each patient has different needs," she explained. "See Joseph over there? He insists that building birdfeeders is for kids, so he won't get involved in building one himself. But he loves to help Angelo with his birdfeeder. For Joseph, helping someone else is more therapeutic than making a product. And Ann Marie over there used to be so competitive about how many pieces of jewelry she made that she would cry whenever she thought that someone else might be making more or working faster. Part of the lesson she's learning through recreational therapy is that she can enjoy herself while she's being productive. Now she is relaxed enough so that she talks to Beverly and Don while she works. She's really made progress in the sense that she feels so much better about herself."



"I'd never thought about working with old people as a special field, but I can see that it sure is different from working with children."

"Oh yes," answered Coretta. "Each of these people has lived a full life and has a lot to share, but it takes lots of patience and a special type of sensitivity to help these people find ways to come out of their shells gracefully, and to make the most of their talents. Helping old people get well is called "geriatrics," and it's a very important field."

After the craft session, Coretta and I met with Philip Dworka, a physical therapist. Coretta and Philip explained to me how all of the nursing home staff works together as a team. The therapists keep records of their patients' problems and progress. Nurses and doctors do the same thing, and every morning during "daily report," all of the records are read aloud. Well, Coretta and Philip attend these sessions daily so that they know what's going on with each patient they serve. Once in a while, they must also take part in "case conferences" in which the professional staff discusses and makes recommendations about the treatment of a particular patient.

"You really care about these people, don't you?" I asked.

"Oh yes. This kind of work isn't right for someone who just wants to make money. Recreational therapists must really be dedicated, and sensitive enough to recognize and encourage all changes and improvements in each patient."

"Do all recreational therapists work in nursing homes, Coretta?"

"No, Fred. Some work in children's homes and hospitals, or in schools or camps for the physically handicapped. Many recreational therapists have less contact with their patients than I do. They might spend most of their time in offices designing recreational programs for various hospitals and treatment centers. Others might choose to work in vocational school or community college classrooms teaching techniques and procedures to less experienced recreational therapists or aides. If I wanted to take courses in administration, I could direct a therapy department at a hospital, or even be a consultant for various hospitals."

"But you are satisfied directing the recreational activities right here at the Siftown Nursing Home, right?"

"Yes sir. I like being with my patients. Getting to know them and helping them make progress is very rewarding to me."

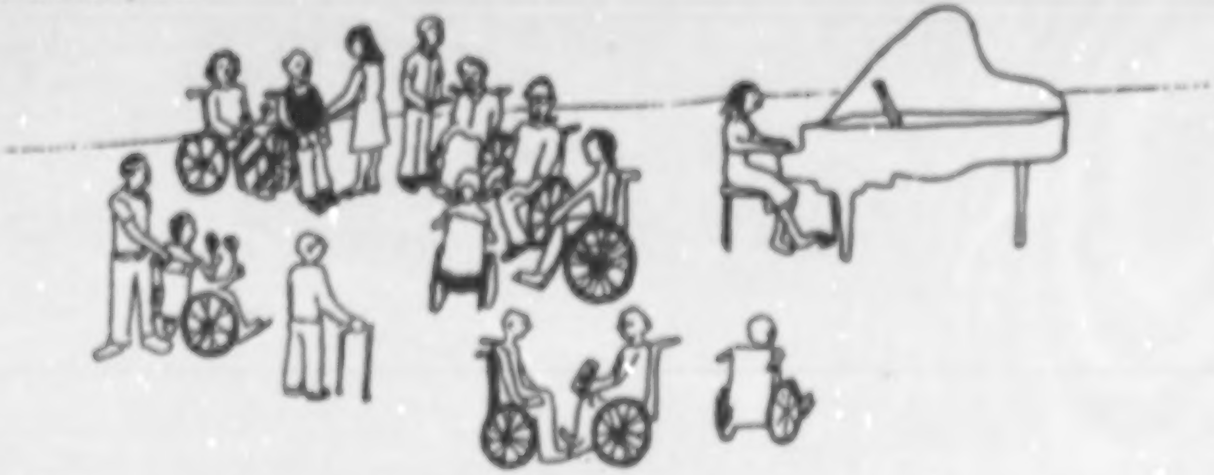
By the time we finished talking, it was time for another activity session. When I walked into the recreation room, I could hardly believe my eyes. Lora Ritt from the Daring Disco Dance Band was sitting at the piano. She was playing a real old fashioned song called "The Dawn Is Breaking." I asked her what she was doing at the Siftown Nursing Home.

"I'm into using music to help people," she said. "I'm working on a music therapy degree at college, and I spend a few hours each week here with the patients. This is my "field work," or practical experience, and it's really great. I've learned more about music therapy here than I could have learned in any classroom."

"Is music therapy a kind of recreational therapy?" I asked.

"Yeah, Fred. As a music therapist, I'd do the same kind of work as Coretta, but I'd be using music in all of the activities that I think up. It's amazing how important music can be to some people who don't talk or use their bodies much. Other kinds of recreational therapy are dance therapy and art therapy, but I'm really happy with music therapy, and I also really enjoy working with old people. I'm thinking seriously about working in geriatrics when I get out of school."

"By this time, the patients had entered the room, and everyone was given a simple rhythm instrument to play: tambourines, drums, bells, maracas, you name it. As Lora played, everyone else played along. Coretta and two aides walked around the group clapping and helping people who were having trouble. Then we all did some exercises, moving our hands and arms to the music. Besides being fun, it was a listening exercise, and an exercise in physical coordination. Later, Coretta brought out some music books with the words and music to old songs in extra large print. That's when the sing-along began. Some people sang; others just listened. Coretta described how much progress some of her patients had made during the last year.



After the sing-along was over, Lora told me, "That sure went smoothly. It's not always so easy, Fred."

"That's true," added Coretta. We've really got to be flexible here, and creative too. Our patients don't always like what we've planned for them."

"That's one of the things I had to learn here," added Lora. "If I've planned a sing-along, and everyone wants to talk about old songs instead of singing them, I've got to go along with it. Something good might come of it, like the time Mrs. Feering started to sing old Irish songs for everyone. That turned into a spontaneous talent show, and no one even needed the piano."

"Lora's right," Coretta said. "We can't get hung up over our plans. We've got to be flexible and patient."

Well, by this time, my mind was really working. I'd begun to wonder if this sort of work might satisfy me, since I'd always liked older people, and I was the hottest piano player in my class. "Coretta," I asked. "How can I prepare for a career in the recreational therapy field?"

"Well, since communication skills are so important, I'd certainly recommend English courses. Not only do you use reading and writing skills to communicate with patients, but you must keep records of attendance in roll books, activity plans in plan books, and daily progress reports on special report sheets. You also use basic math to figure out the average attendance at weekly activity sessions, and to order materials you'll be using with the patients. And let's see...background in physical education and human anatomy comes in handy. But if I were you, Fred, I'd try to get some volunteer experience here or in a hospital first. Then, if you're still serious about this kind of work, you should study geriatric recreation or social services at a community college. After getting a degree, you'll need three years of practical experience before getting certified as a recreational therapist or activity director."

"Well, Coretta, thanks for teaching me so much about your work. I've learned that it takes a special kind of person to do this work, and to tell you the truth,

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I'd like to try it myself."

"I'm glad to hear that, Fred. It takes enthusiasm, a warm personality, imagination, physical stamina, and the kind of maturity that will help you deal with other people's needs and problems all day long."

"I'm willing to try."

"Well, I'm glad to hear it. Maybe I'll see you here as a volunteer, Fred."

"I hope so, Coretta. It may be time for me to start brushing up on some old-time songs on the piano."

QUIZ YOURSELF

RECREATIONAL THERAPIST

Name 3 of Coretta's on-the-job tasks.

1) ______________________________

2) ______________________________

3) ______________________________

On page Fred describes some of Coretta's tools. Name at least 3, and describe how each is used.

	TOOLS	USES
1)	______________	______________________
2)	______________	______________________
3)	______________	______________________

When Fred looks around the room, he first sees Coretta's tools. What else does he notice about the room (p.

____

On page 83, Coretta describes many places where recreational therapists can find work, Name 2 of these.

1) ______________ 2) ______________

Where can recreational therapists get the training they need to do their jobs? Look on page 85.

____

____

Describe how Coretta uses math and reading skills on the job.

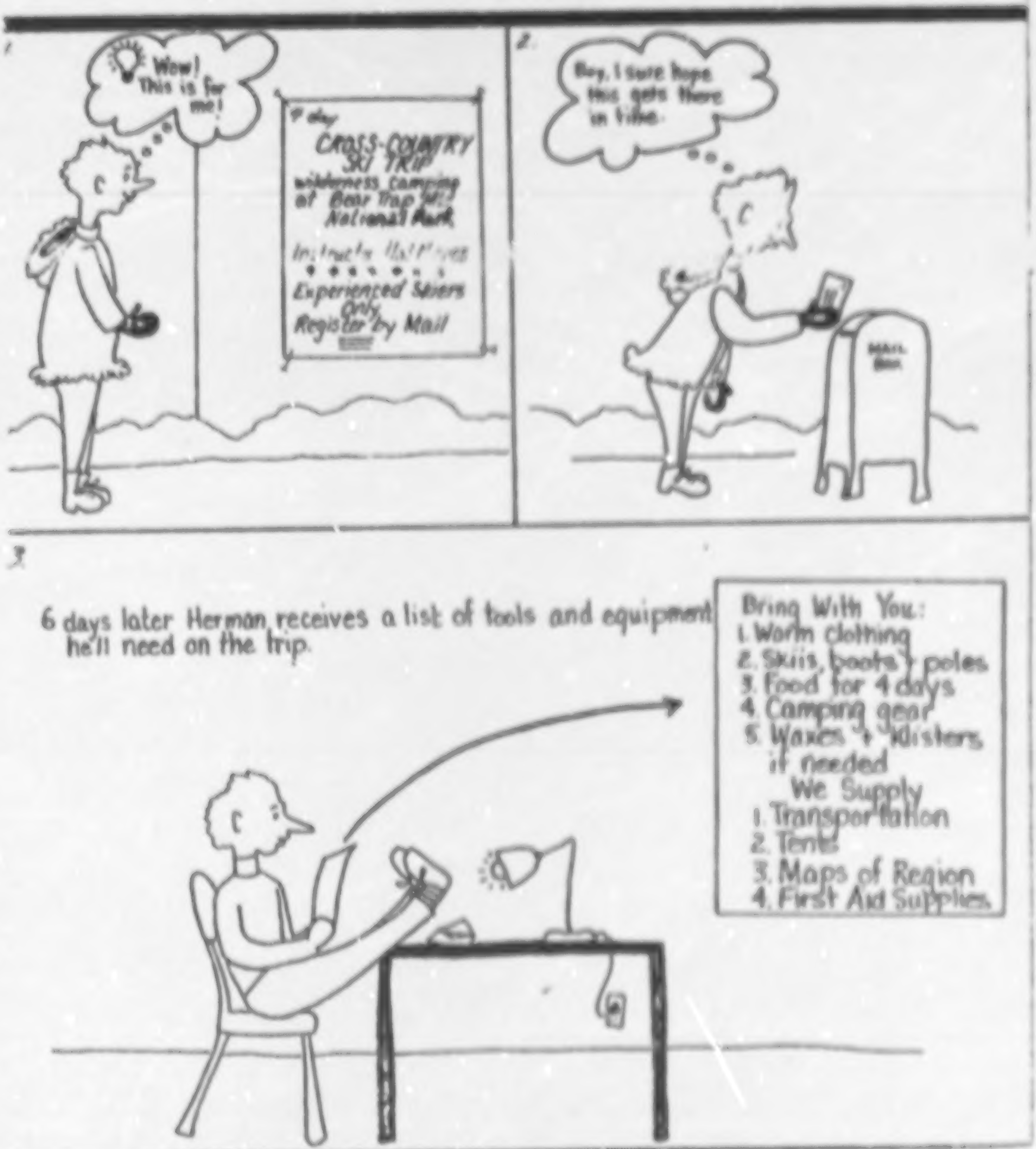
math ______________________________

reading ______________________________

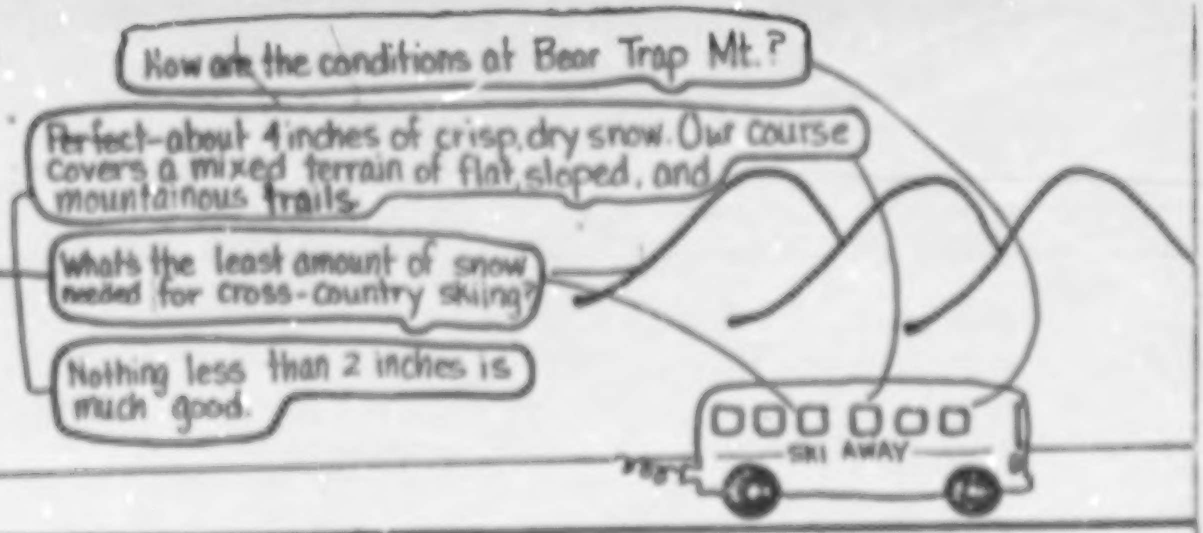
Besides special training and practice using reading and math skills, what personal qualities should recreational therapists develop?

____

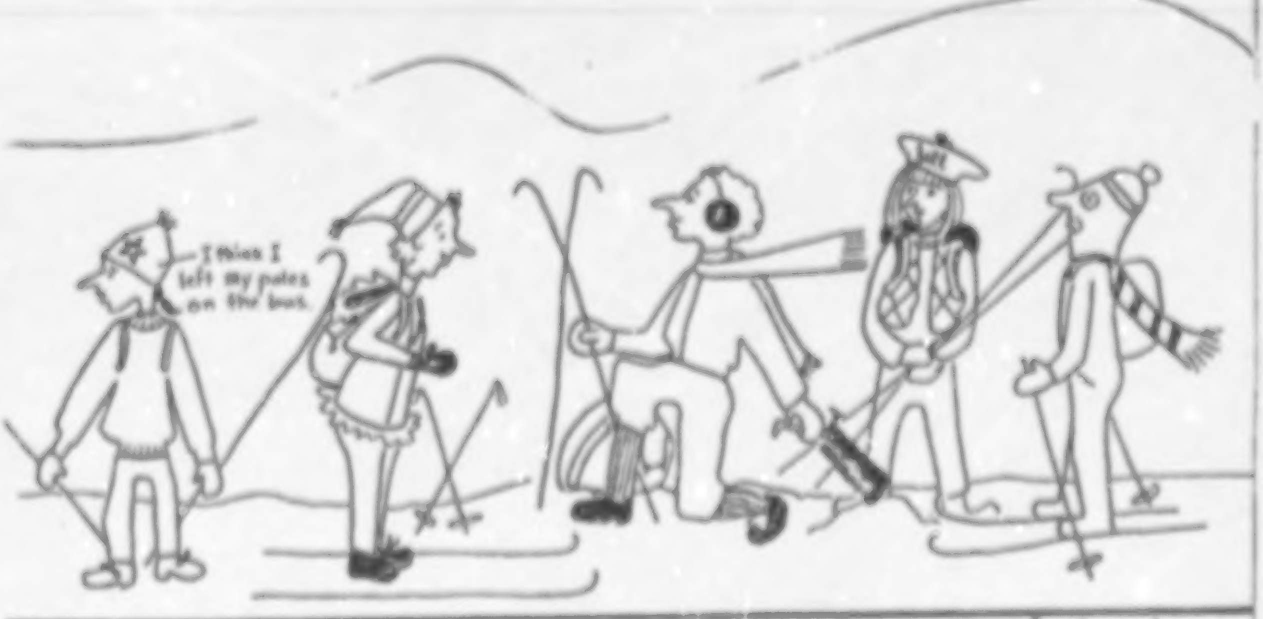
Nieves at Work:
A Cross-Country Ski Adventure


1.
Wow! This is for me!
7 day CROSS-COUNTRY SKI TRIP wilderness camping at Bear Trap Wild National Park
Instructor Nieves
Experienced Skiers Only
Register by Mail
2.
Boy, I sure hope this gets there in time.
MAIL BOX
3.
6 days later Herman receives a list of tools and equipment he'll need on the trip.
Bring With You:
1. Warm clothing
2. Skiis, boots + poles
3. Food for 4 days
4. Camping gear
5. Waxes + klisters if needed
We Supply
1. Transportation
2. Tents
3. Maps of Region
4. First Aid Supplies

4.


How are the conditions at Bear Trap Mt.?
Perfect-about 4 inches of crisp, dry snow. Our course covers a mixed terrain of flat, sloped, and mountainous trails.
What's the least amount of snow needed for cross-country skiing?
Nothing less than 2 inches is much good.
SKI AWAY

5.


I think I left my poles on the bus.

Herman: You're the instructor. What kind of wax should we use on our skis for this type of snow?

Hal: Well, Herman, I suggest a blue wax considering the temperature and type of snow. It'll make your skis glide easily. Different waxes are made to keep skis from sticking to the snow in varied weather conditions.

Jill: What's the torch for?

Hal: I use a torch to heat up my skis. It makes applying the wax easier. Sometimes I use a torch to remove old wax if I get a wax build-up. You can only use a torch on wooden skis. The flame might ruin a fiberglass ski.

Fred: I don't need wax for my skis.

Hal: Many of the newer skis are waxless. They have "steps" or "fish scales," which are surface devices that work the way wax does. Some waxless skis have two ridges of mohair on the bottoms of them, which work the same way as the "scales or "steps." Me, I prefer skis that require waxing. I also like a traditional wooden ski. A lot of it is just taste.

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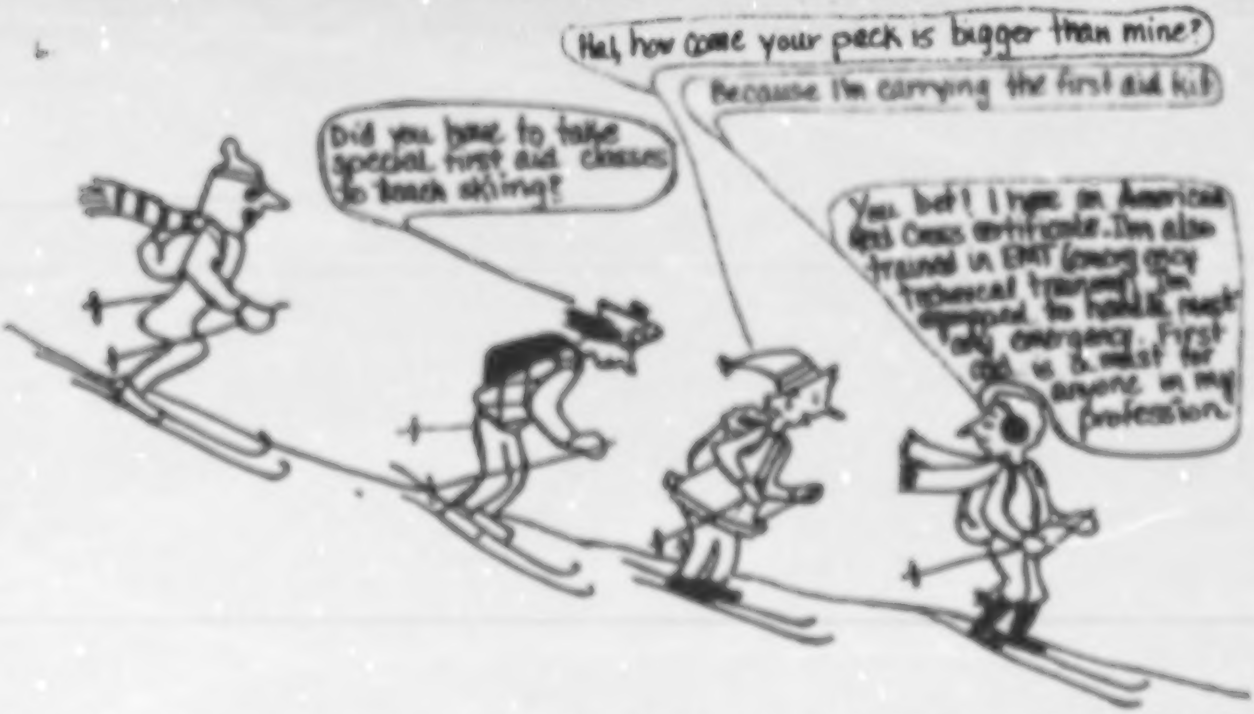
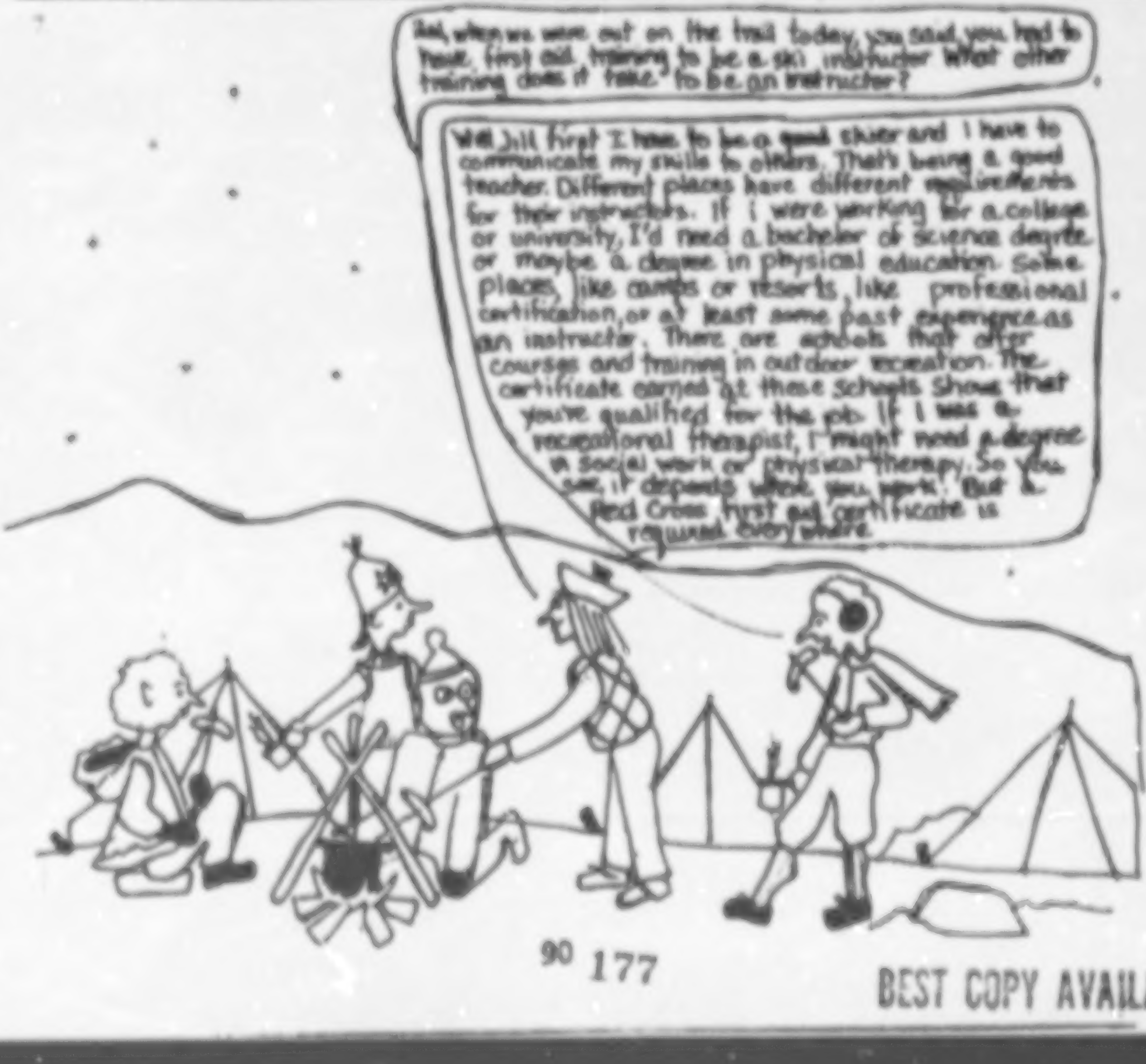

Hal, how come your pack is bigger than mine?
Because I'm carrying the first aid kit
Did you have to take special first aid classes to teach skiing?
You bet! I have an American Red Cross certificate. I'm also trained in EMT (emergency medical technician). I'm equipped to handle nearly any emergency. First aid is a must for anyone in my profession.


Hal, when we were out on the trail today, you said you had to have first aid training to be a ski instructor. What other training does it take to be an instructor?
Well Jill first I have to be a good skier and I have to communicate my skills to others. That's being a good teacher. Different places have different requirements for their instructors. If I were working for a college or university, I'd need a bachelor of science degree or maybe a degree in physical education. Some places, like camps or resorts, like professional certification, or at least some past experience as an instructor. There are schools that offer courses and training in outdoor recreation. The certificate earned at these schools shows that you're qualified for the job. If I was a recreational therapist, I might need a degree in social work or physical therapy. So you see, it depends where you work. But a Red Cross first aid certificate is required everywhere.

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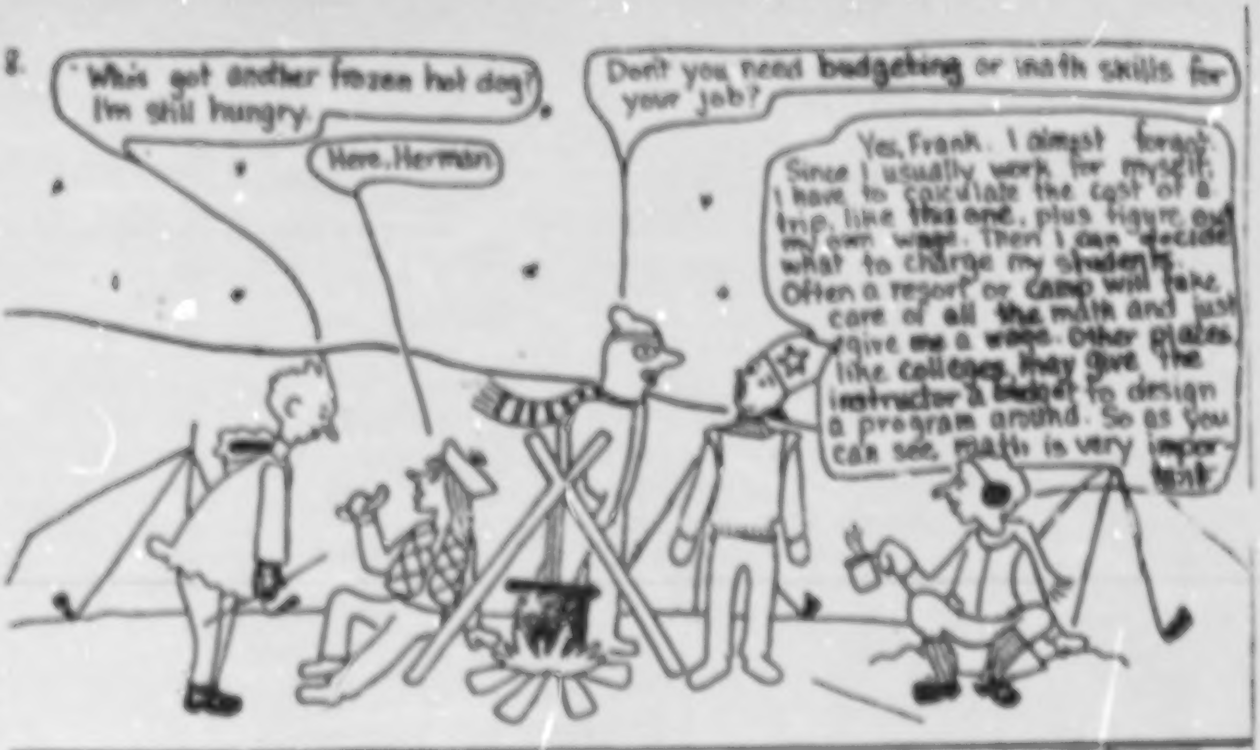
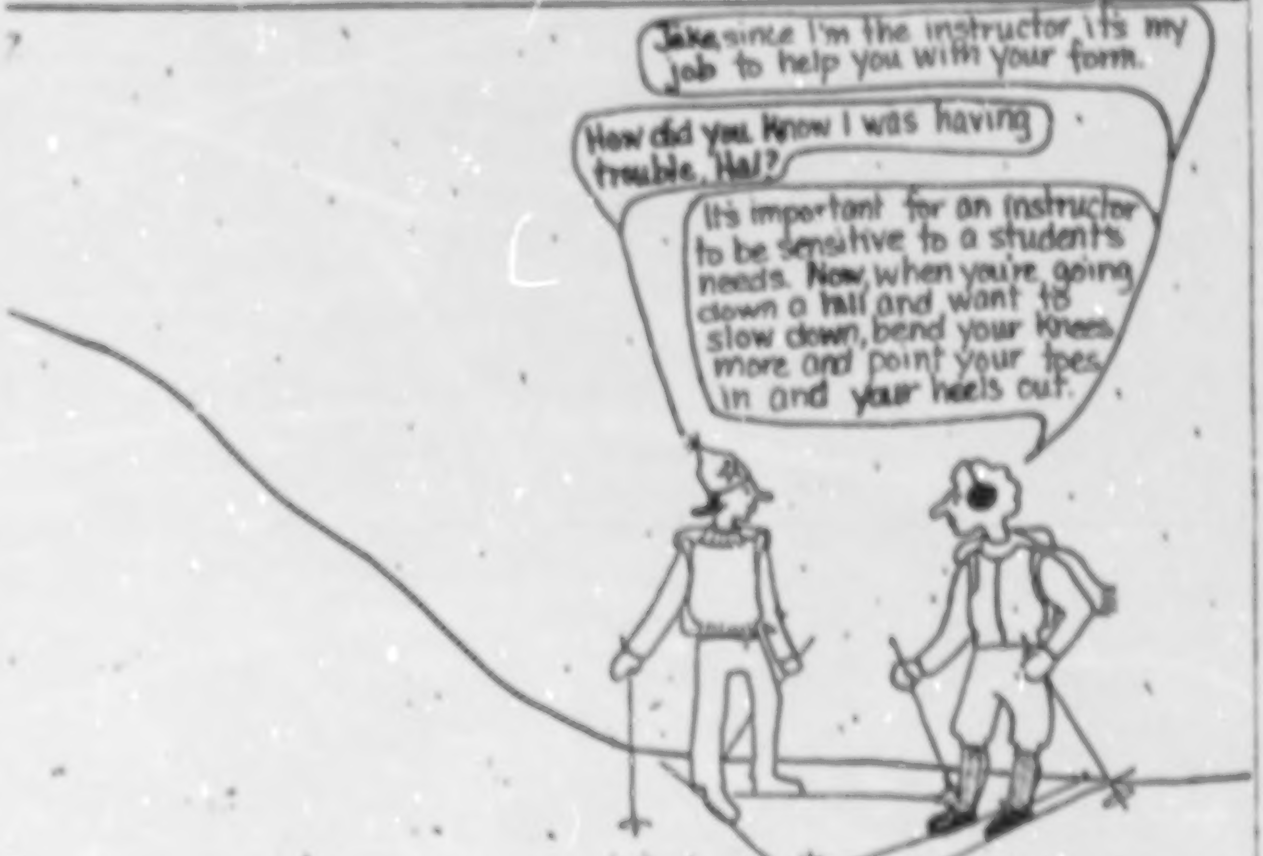
8.


Who's got another frozen hot dog? I'm still hungry.
Here, Herman.
Don't you need budgeting or math skills for your job?
Yes, Frank. I almost forgot. Since I usually work for myself, I have to calculate the cost of a trip, like this one, plus figure out my own wage. Then I can decide what to charge my students. Often a resort or camp will take care of all the math and just give me a wage. Other places like colleges, they give the instructor a budget to design a program around. So as you can see, math is very important.

7


Jake, since I'm the instructor, it's my job to help you with your form.
How did you know I was having trouble, Hal?
It's important for an instructor to be sensitive to a students needs. Now, when you're going down a hill and want to slow down, bend your knees more and point your toes in and your heels out.

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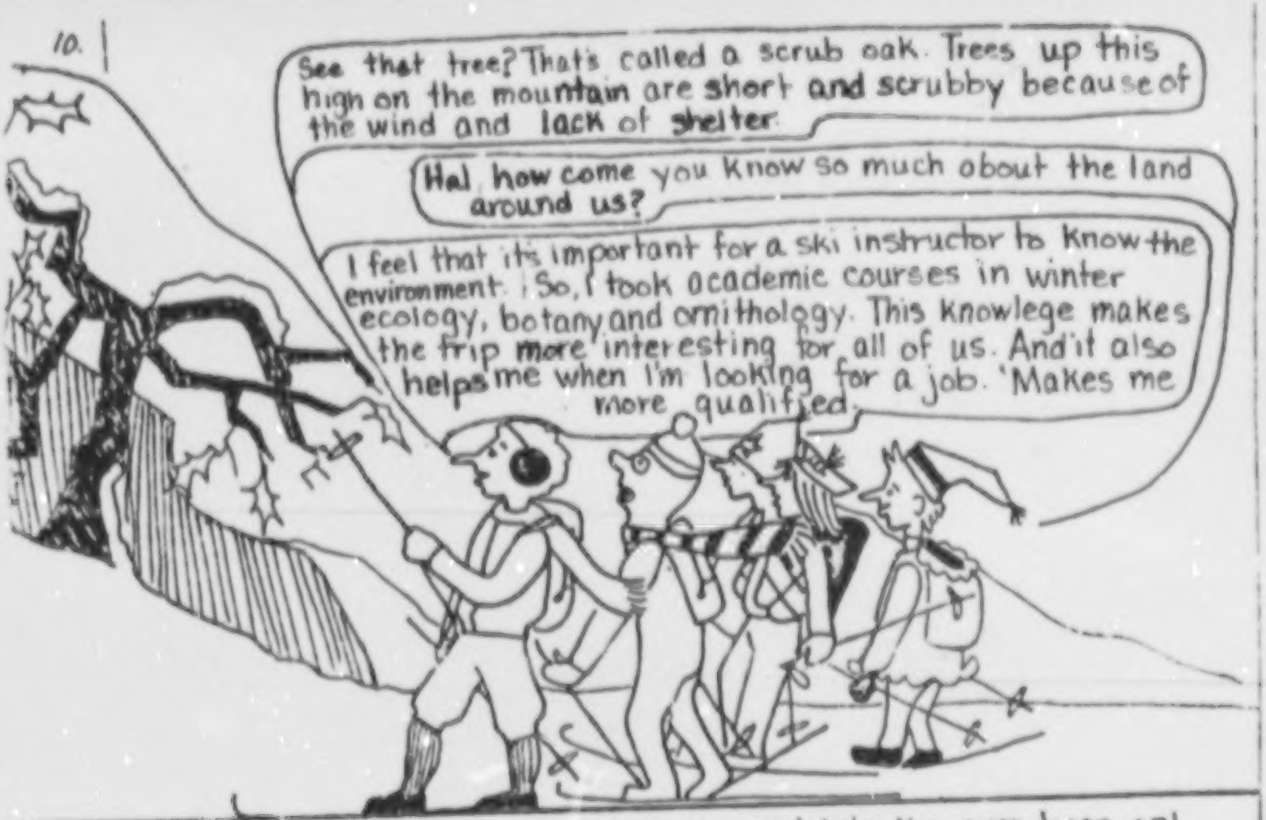
10.


See that tree? That's called a scrub oak. Trees up this high on the mountain are short and scrubby because of the wind and lack of shelter.
Hal, how come you know so much about the land around us?
I feel that it's important for a ski instructor to know the environment. So, I took academic courses in winter ecology, botany and ornithology. This knowlege makes the trip more interesting for all of us. And it also helps me when I'm looking for a job. 'Makes me more qualified.

11.

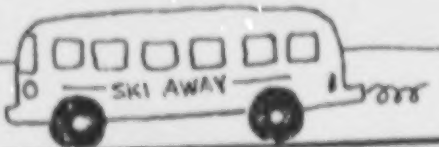
Jill: Boy, that was the greatest cross country ski trip I've ever been on!

Herman: I sure am glad it didn't get warm enough to melt the snow like they forecasted. Those weather people are wrong half of the time.

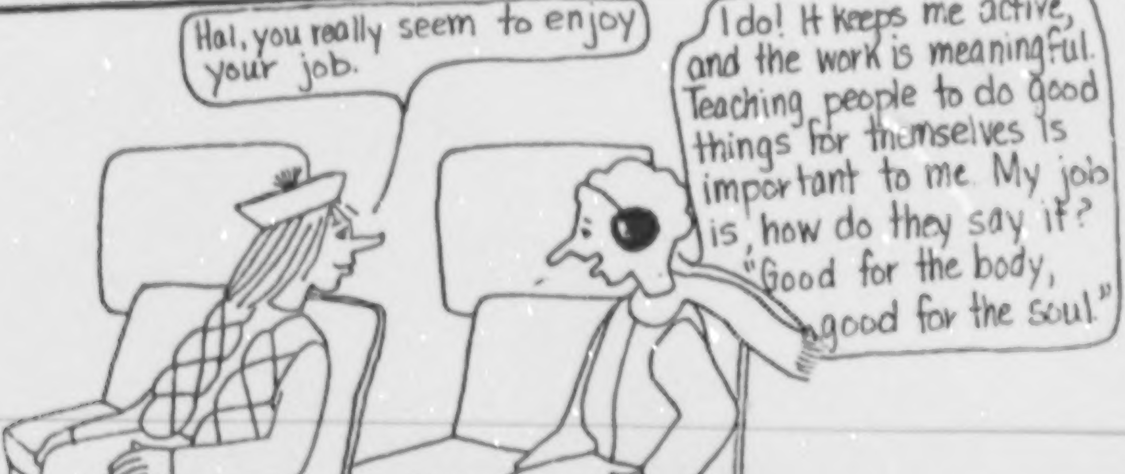
Hal: You know Herman, the weather is my biggest hazard. No snow - no work. I moved to this area of the country just because we have good snowy winters here.

Fred: I never thought of that. You can't be a ski instructor in Florida.

Hal: Not unless you want to teach water skiing.



12.


Hal, you really seem to enjoy your job.
I do! It keeps me active, and the work is meaningful. Teaching people to do good things for themselves is important to me. My job is, how do they say it? "Good for the body, good for the soul."

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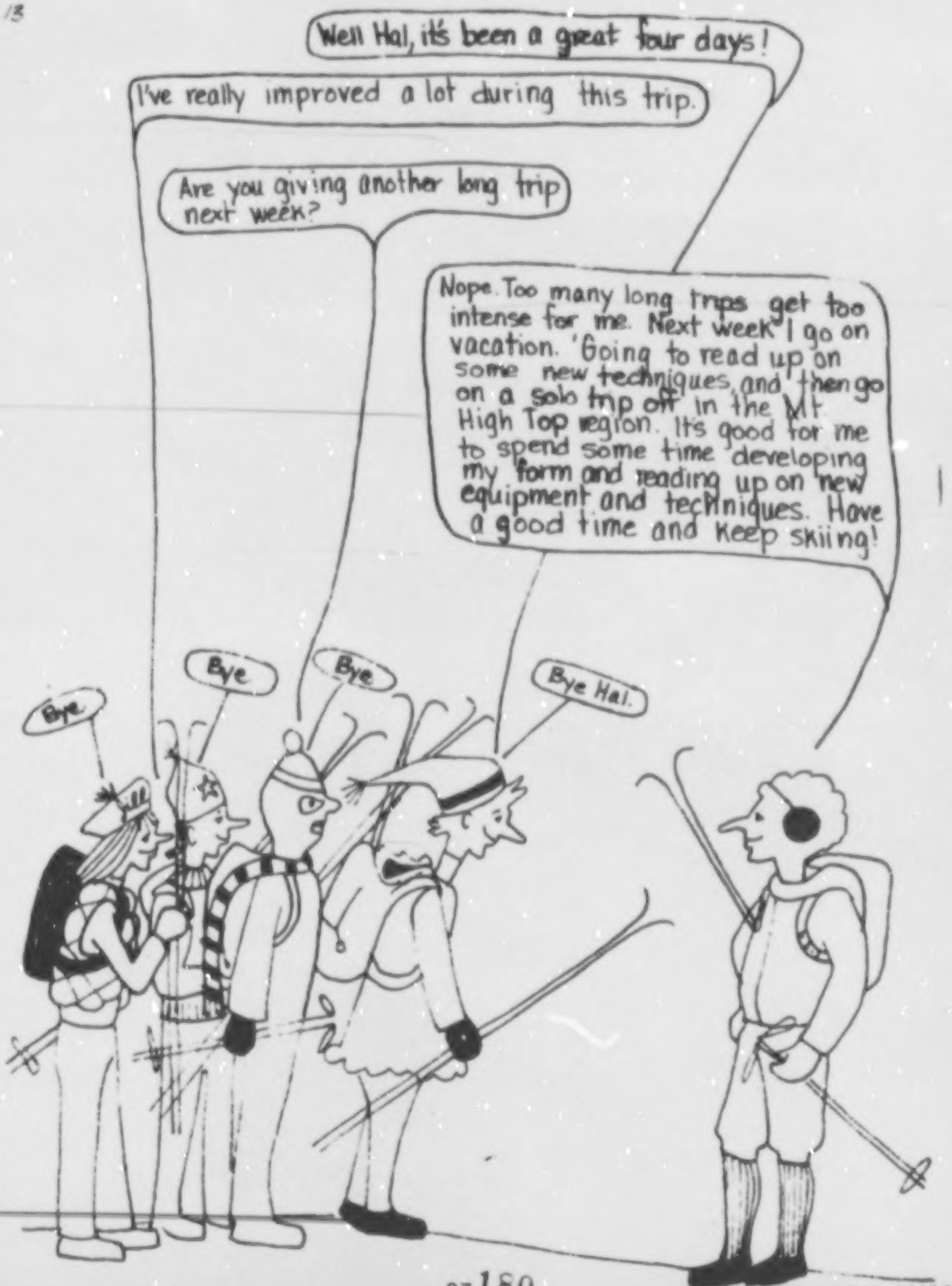
Well Hal, it's been a great four days!
I've really improved a lot during this trip.
Are you giving another long trip next week?
Nope. Too many long trips get too intense for me. Next week I go on vacation. 'Going to read up on some new techniques, and then go on a solo trip off in the Mt High Top region. It's good for me to spend some time developing my form and reading up on new equipment and techniques. Have a good time and keep skiing!
Bye
Bye
Bye
Bye Hal.

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QUIZ YOURSELF

Name 3 tools or pieces of equipment I use to do my job, and one use for each.

TOOLS OR EQUIPMENT	USES
1.____________________	1.____________________
2.____________________	2.____________________
3.____________________	3.____________________

Name 3 of my on-the-job tasks or skills.

1.____________________

2.____________________

3.____________________

What are the special weather conditions needed for me to do my job? (See frame #4)

____

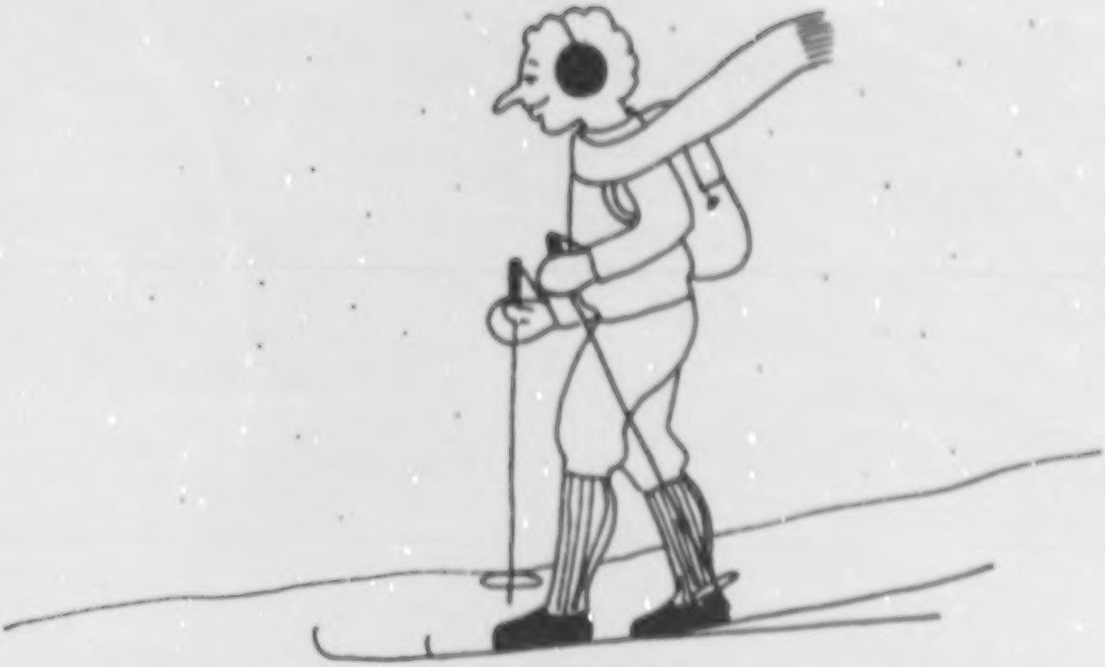
Name my biggest work hazard. (See frame # 11)

____

Name 3 places where you might find a ski instructor at work.

1. ____________________
2. ____________________
3. ____________________

QUIZ YOURSELF CONTINUED ON NEXT PAGE



Describe how I use math and reading for my job.

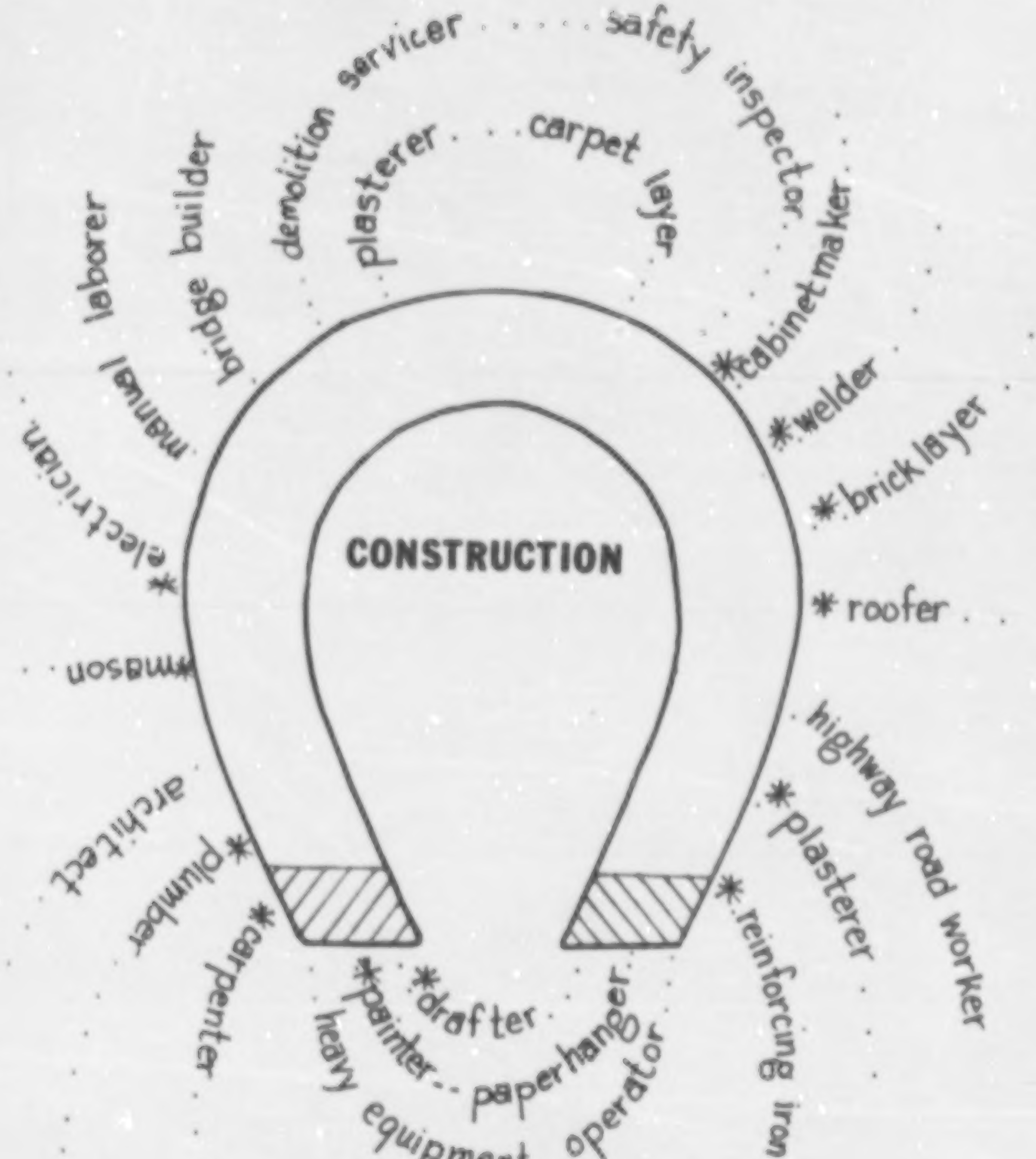
____

Name 2 kinds of training needed to be a ski instructor.

1. ______________________________
2. ______________________________

Name 1 academic course I found helpful in doing my job. (See frame #10)

____


safety inspector
demolition servicer
plasterer
carpet layer
bridge builder
manual laborer
*cabinet maker
*welder
*brick layer
*electrician
CONSTRUCTION
*roofer
*mason
highway road worker
architect
*plasterer
*plumber
*reinforcing iron worker
*carpenter
*painter
*drafter
paperhanger
heavy equipment operator
iron worker

Apprenticeship training is offered for each of these occupations.

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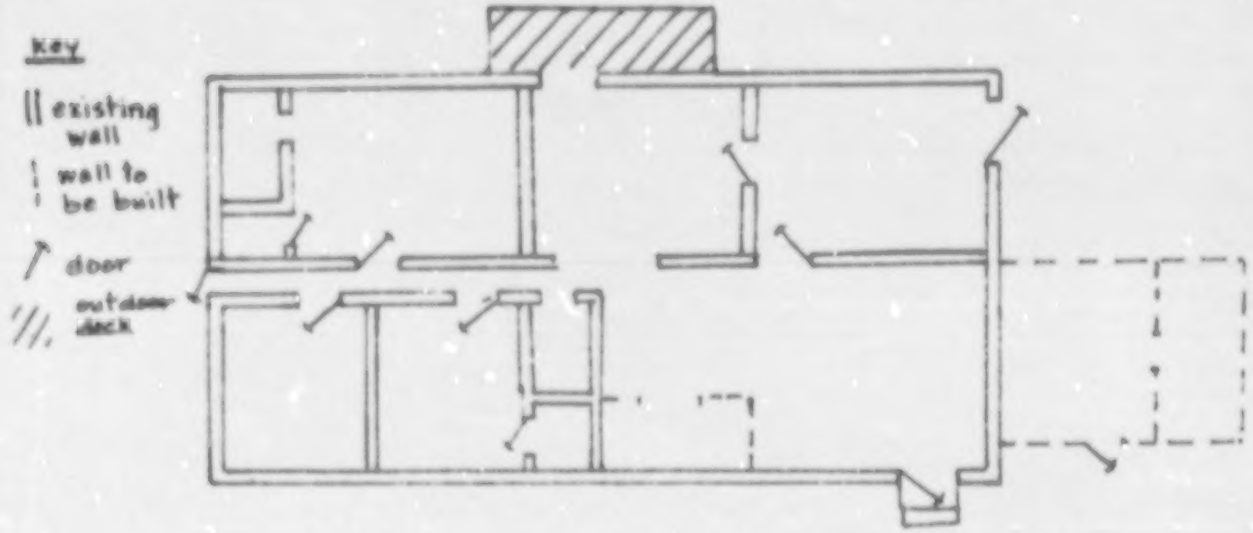
ARCHITECTURAL DRAFTER

Architectural drafters work as part of a team in the business of construction
Drawing new plans for structures to be built,
And renovation plans for structures which have met with some destruction.
To start their work, drafters use sketches and "specs,"
(Guidelines for buildings) from engineers and architects.
These specific instructions for a building's design
Help drafters draw plans, keeping form, use, and cost in mind.
In renovation work (renewal), a drafter's tasks are listed below:
Trace the existing plan, and use standard symbols to show
What parts of the buildings must be added on, and which parts of the structure must go.
All the parrs of a structure are represented by lines, carefully measured for detail.
Builders can see all the structural dimensions, since plans are always drawn
Exactly to scale.



Though drafters draw on drafting film or special tracing paper,
A machine turns these into blueprints used for **every** building caper.
Drafters use engineering handbooks and calculators at length
To figure out a structure's **desired** capacity and strength.
Drafters also suggest the best materials for a job.
To find the best at the lowest costs, they consult building catalogs.
These materials are then listed in a detailed description.
A drafter's blueprint is a builder's prescription.

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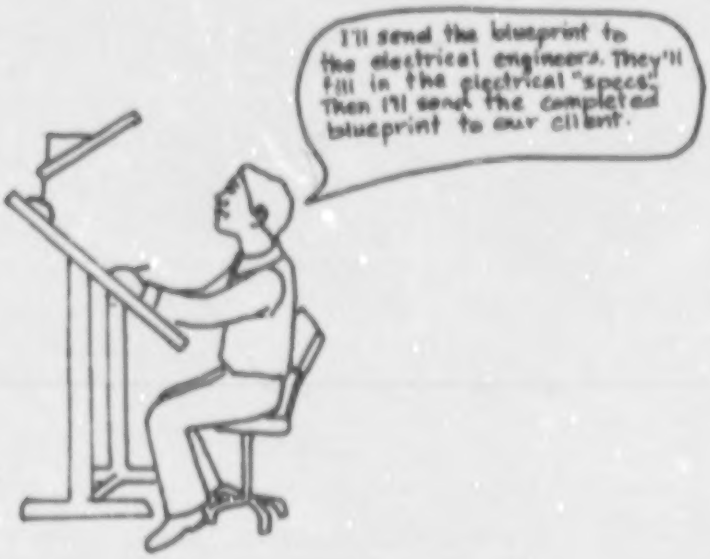
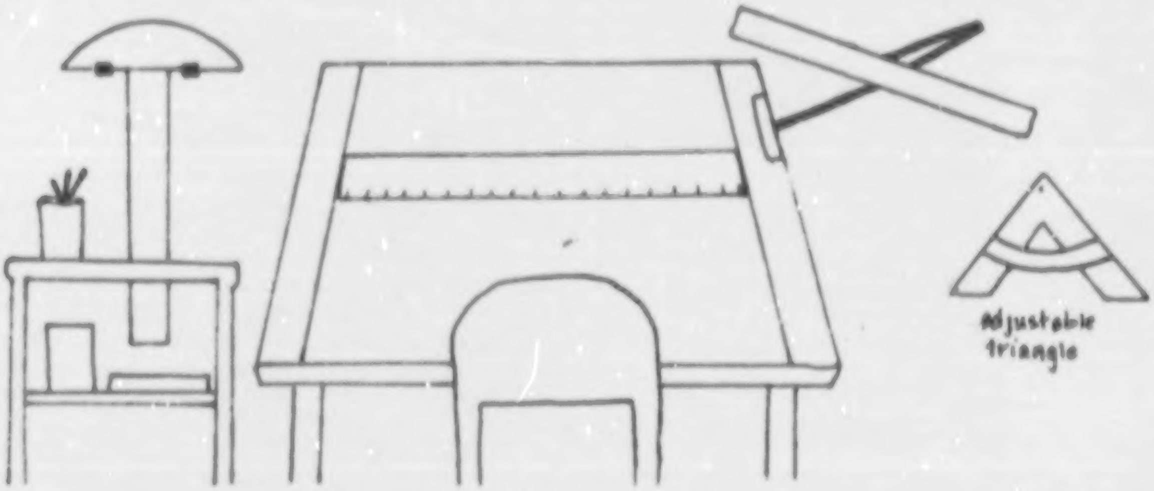
Drafters' plans guide electricians, plumbers, and carpenters too.
The blueprints tell these workers how and what to do.
Members of this construction team then begin to communicate.
Exchanging ideas and opinions, they find solutions that are first rate.


I'll send the blueprint to the electrical engineers. They'll fill in the electrical "specs." Then I'll send the completed blueprint to our client.

Drafters spend most of their time in quiet well-lit drafting rooms,
And most get benefits like paid vacations and medical insurance.
On-the-job hazards are stiff necks and sore backs,
And when you're always standing on your feet, it helps to have endurance.

Drafters work at large drawing tables with tools to measure and draw.
Adjustable triangles help them draw angles, needed for every drafting chore.
Drafters use geometry all the time, and must check their figures' dimensions,
So math is too important a skill for me not to mention.
Parallel edges and T squares help when drawing parallel lines,
And erasable pencil is the popular tool for drawing the drafter's designs.


Adjustable triangle

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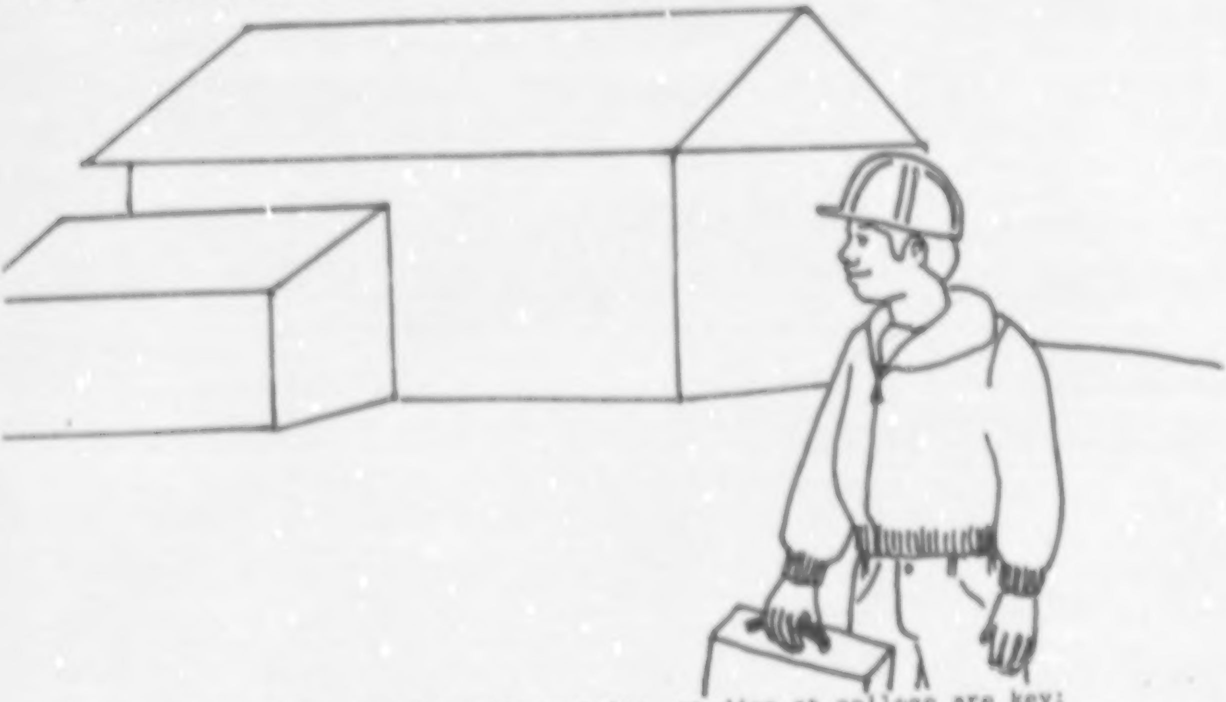
Drafters don't always work indoors, though, depending on secondhand news...
They may want to look at and draw a structure from many different views.
In this case, they'll visit "in the field" at the construction or renovation site,
And get ideas about which steps to take next, and which materials will go just right.



Before apprenticeship (on-the-job) training, studies at college are key;
Though high school graduates have a chance, most drafters have a college degree.
In high school, you can prepare now by taking art courses,
And in your free time, get a pencil and draw anything, from automobiles to horses.
Physics comes in handy, and so do wood, electric, and metal shop.
After two years of mechanical drawing, you can try a summer drafting job.

Engineering offices and architectural firms commonly employ drafters.
Drafters also work in large building complexes, to help maintain structures
From their basements to their rafters.

Advancement to "senior" means giving other drafters guidance and instruction.
And an "architect's rep" often works in the field, overseeing construction.
Drafters can move to jobs in other fields, like electric or sales engineers,
Or technical report writers, installation technicians, or production overseers.
"To be an architect one day" is many a drafter's aspiration,
But being an architect takes many more years of school training,
Which means lots of patience, and perspiration.

ARCHITECTURAL DRAFTER:
WHAT DO YOU KNOW?

What are 3 of an architectural drafter's work tasks?

1. ____________________

2. ____________________

3. ____________________

Name 3 of a drafter's tools or pieces of equipment, and describe how each is used.

TOOLS	USES
1. ____________	1. ____________
2. ____________	2. ____________
3. ____________	3. ____________

How do architectural drafters use reading and math skills on the job?

reading: ____________________

math: ____________________

Name one advantage and one disadvantage of working as an architectural drafter.

advantage: ____________________

disadvantage: ____________________

Name 2 places where architectural drafters can be found at work.

1. ____________ 2. ____________

Describe the training that architectural drafters need.

____

____

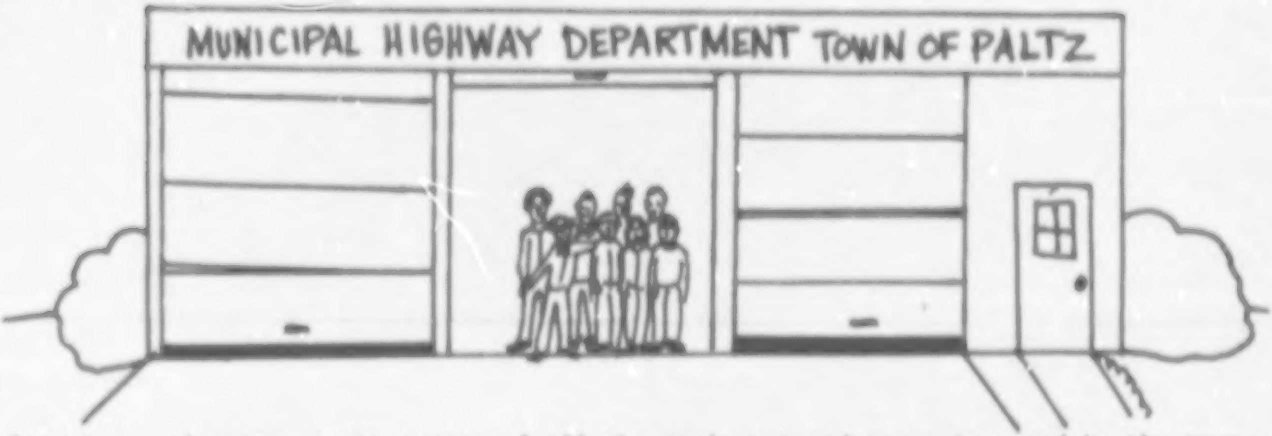
Name 3 advancement possibilities for architectural drafters.

1. __________ 2. __________ 3. __________

HEAVY EQUIPMENT OPERATOR:

BUILDING A CAREER

My name is Hanna Debs. This is where I work:


MUNICIPAL HIGHWAY DEPARTMENT TOWN OF PALTZ

The Highway Department takes care of all the equipment and property owned by the town: buildings, roads, sidewalks, curbs, parks, the sewage treatment plant, the storm drainage system, and the water system. The people in the picture are Highway Department workers. I'm on the right, in the front row. I had just started working for the Highway Department when the picture was taken, two years ago. I was a Laborer then.

Most of my work as a Laborer was outdoors, as a member of a team, taking care of the roads, sidewalks, and curbs. My on-the-job training included learning how to use mowers to cut grass beside the road, and rakes to clear away brush. I used shovels to dig ditches, and saws to cut up any large limbs or branches that fell on the road. I used hammers, screwdrivers, wrenches, and ladders to put up traffic signs and traffic lights. In winter, I cleared away snow and ice. I used snow shovels and rock salt. The city supplied all the tools and my uniforms, including gloves, a raincoat, rubber boots, and a hard hat.

My work took lots of physical strength and coordination. Sometimes I had to be "on call." That meant I had to come to work in the middle of the night, if there was an emergency. I also had to be "on-call" some weekends. I didn't mind that too much, because I got paid double time. The main hazard in my work was minor injuries like cuts, scrapes, and bruises. The big advantage for me was working outdoors.

After a year as a laborer, I got interested in learning to operate the Highway Department's heavy equipment: the 10-ton dump truck, the 5-ton roller, the backhoe, and the front end loader. But I didn't want to go to school to learn how to operate heavy equipment. You see, when I thought of going to school, I thought of reading. I have a lot of trouble with reading. In fact, I dropped out of high school mainly because so much reading was required. So I asked my foreman, Henry, about learning heavy equipment operation on the job. Henry told me I was a hard worker and a good worker. He said that he would train me on the job to operate the town's heavy equipment. That was a year ago.

The first training Henry gave me was in day-to-day equipment maintenance. I had to check the oil and gas every morning, clean the windshields, and report any repairs needed. Then I learned how to do minor repairs, like brakes. (I sure got handy with

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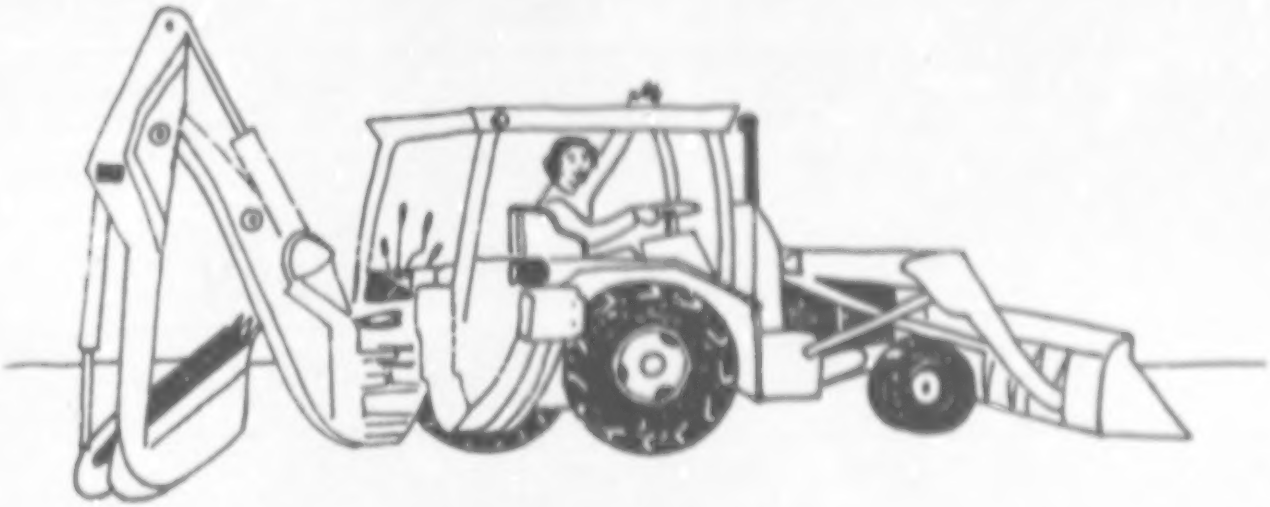
with a wrench, but I didn't like being in the garage so much). Next, Henry told me about how to operate each piece of equipment. When I went along to jobs with other equipment operators in the Highway Department, I watched what they did, listened to what they told, me, and asked questions about what I didn't understand. After I got my special license (it's called a "Class 3" license), I started driving the equipment myself.

I make more money now as an Equipment Operator. I work outside most of the time, and most of my working conditions haven't changed much except that working with heavy equipment can be very dangerous if I don't stay alert. I still work as part of a team for the Highway Department. I do my part by digging ditches, and putting up traffic signs when my help is needed. And when heavy equipment is needed at highway or building construction sites, I operate it.



Today, Henry told me that the Highway Department needs another worker with plumbing skills. The Department will pay for the training course at the vocational school in New Pauls. He said I should take the course. I told Henry I'd love to learn to do plumbing, without a training course, just the same way I'd learned to operate heavy equipment.

"You're the best Equipment Operator I've ever trained. You're a very good worker at whatever you do. But you won't get paid any more money for your plumbing skills unless you take some training courses. It says so right here in the regulations book. Look!"

I told Henry about how I dropped out of high school because of reading, and he said, "You have to look at it differently. First of all, a training course in plumbing is not like the high school courses you took. Second, you deserve to be paid for what you do. And third, you should give yourself another chance in school to study something you're interested in."

What Henry says makes sense, but I don't know yet if I'll take the training course. What would you do?

Hanna Debs: Equipment Operator

Test Yourself

Name 3 work tasks Hanna performs as an equipment operator.

1. ______________________________

2. ______________________________

3. ______________________________

Name 3 pieces of equipment Hanna operates.

1. ______________ 2. ______________

3. ______________

Why did it become important for Hanna to use reading skills?

____

Hanna got her training on the job. Name one other place an equipment operator can get training.

____

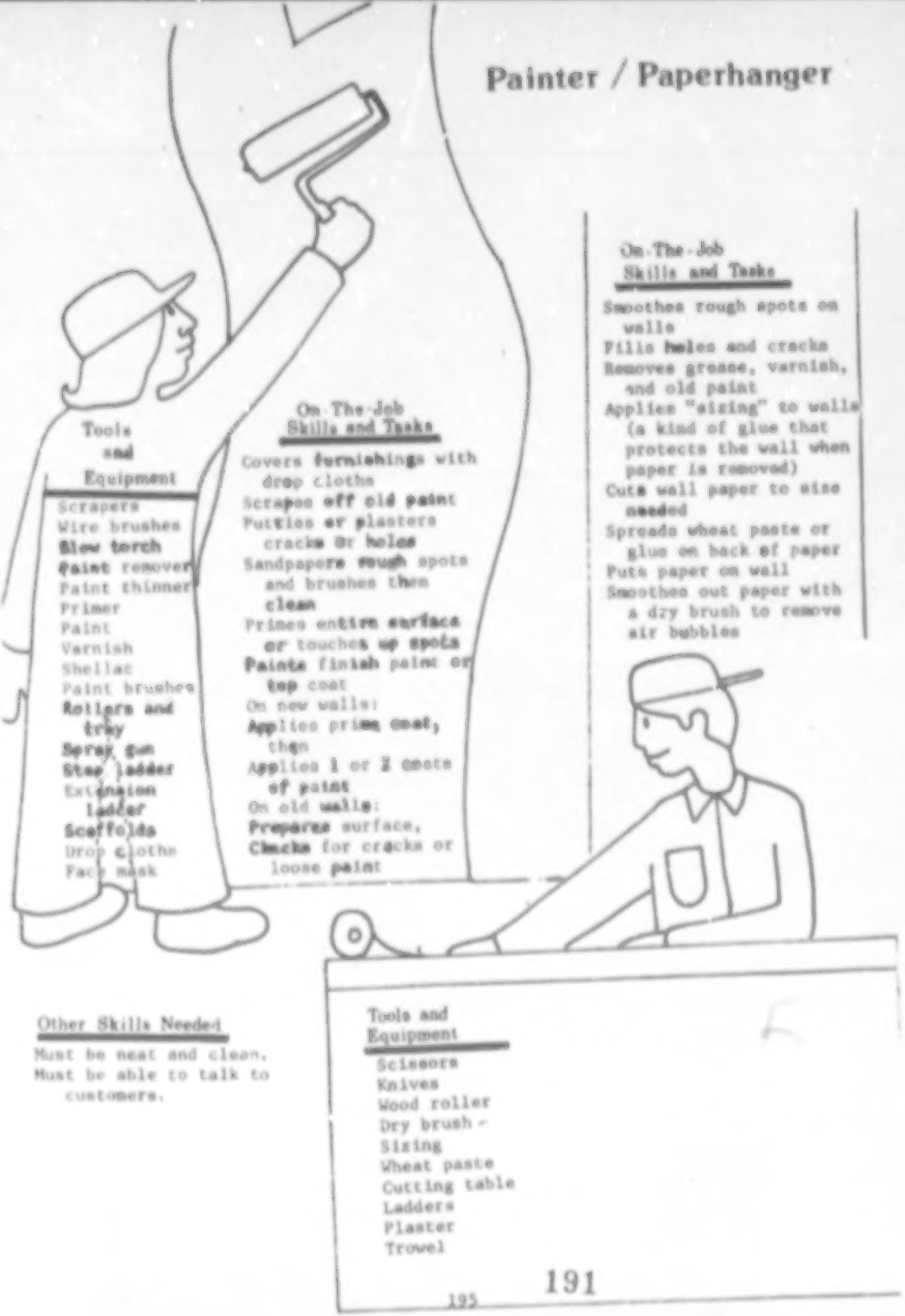
What would Hanna have to do in order to earn more money on the job?

____

What did Hanna like best about her work conditions?

____

Painter / Paperhanger



Tools and Equipment

- Scrapers
- Wire brushes
- Blow torch
- Paint remover
- Paint thinner
- Primer
- Paint
- Varnish
- Shellac
- Paint brushes
- Rollers and tray
- Spray gun
- Step ladder
- Extension ladder
- Scaffolds
- Drop cloths
- Face mask

On-The-Job Skills and Tasks

- Covers furnishings with drop cloths
- Scrapes off old paint
- Putties or plasters cracks or holes
- Sandpapers rough spots and brushes them clean
- Primes entire surface or touches up spots
- Paints finish paint or top coat
- On new walls:
- Applies prime coat, then
- Applies 1 or 2 coats of paint
- On old walls:
- Prepares surface,
- Checks for cracks or loose paint

On-The-Job Skills and Tasks

- Smoothes rough spots on walls
- Fills holes and cracks
- Removes grease, varnish, and old paint
- Applies "sizing" to walls (a kind of glue that protects the wall when paper is removed)
- Cuts wall paper to size needed
- Spreads wheat paste or glue on back of paper
- Puts paper on wall
- Smoothes out paper with a dry brush to remove air bubbles

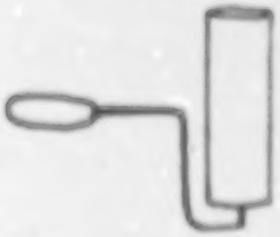
Other Skills Needed

Must be neat and clean.
Must be able to talk to customers.

Tools and Equipment

- Scissors
- Knives
- Wood roller
- Dry brush -
- Sizing
- Wheat paste
- Cutting table
- Ladders
- Plaster
- Trowel

Painter / Paperhanger



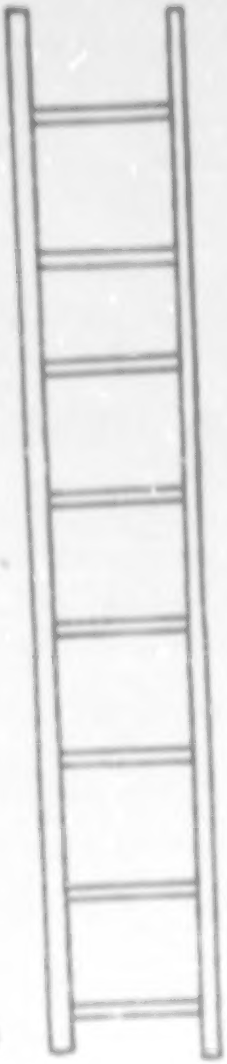
Although painting and paperhanging are two separate skilled trades, many people do both types of work. The different On-The-Job Skills, Tasks, and Tools and Equipment used at each trade are listed separately next to the picture of the painter or the paperhanger.

But since both jobs are similar in many ways, they share many characteristics. Information like Training and Advancement possibilities, Work Conditions, and On-The-Job use of Reading and Math, which are the same for both jobs, are listed only once on this page.

Training

On-the-job: Start out as a helper, and learn all the skills within four or five years.

Apprenticeship: Three years of planned activities including work experience and classroom training.



Work Site

Indoors or outdoors in new or existing buildings.

Homes, offices, hotels and motels, schools, shipyards, manufacturing firms.

Self-employed painter/paperhangers may have own private offices.

Work Conditions

Hazards working indoors include allergic reactions to paint fumes.

Hazards working outdoors include falling from high ladders or scaffolds.

Advantages include a 40 hour work week with extra pay for overtime.

Union workers earn good wages and get lots of fringe benefits.

On-The-Job Use Of Reading and Math

Reads work orders and directions on paint cans or other supplies.

Does math to compute cost estimates and amounts of paint or paper and other supplies needed.

Advancement Possibilities

Workers with management ability can supervise and coordinate the activities of others.

Workers skilled in math can become estimators for large contracting companies.

PAINTER / PAPERHANGER

HOW MUCH DO YOU REMEMBER?

Name 3 of a painter's work tasks.

1. ______________________________
2. ______________________________
3. ______________________________

Name 3 of a painter's tools.

1. ______________________________
2. ______________________________
3. ______________________________

Name 3 of a paperhanger's work tasks.

1. ______________________________
2. ______________________________
3. ______________________________

Name 3 of a paperhanger's tools.

1. ______________________________
2. ______________________________
3. ______________________________

How do painter/paperhanger's use reading and math?

reading: ____

math: ____

What kind of training is required of painter/paperhangers?

____

____

Name ond advantage and one disadvantage of working as a painter/paperhanger.

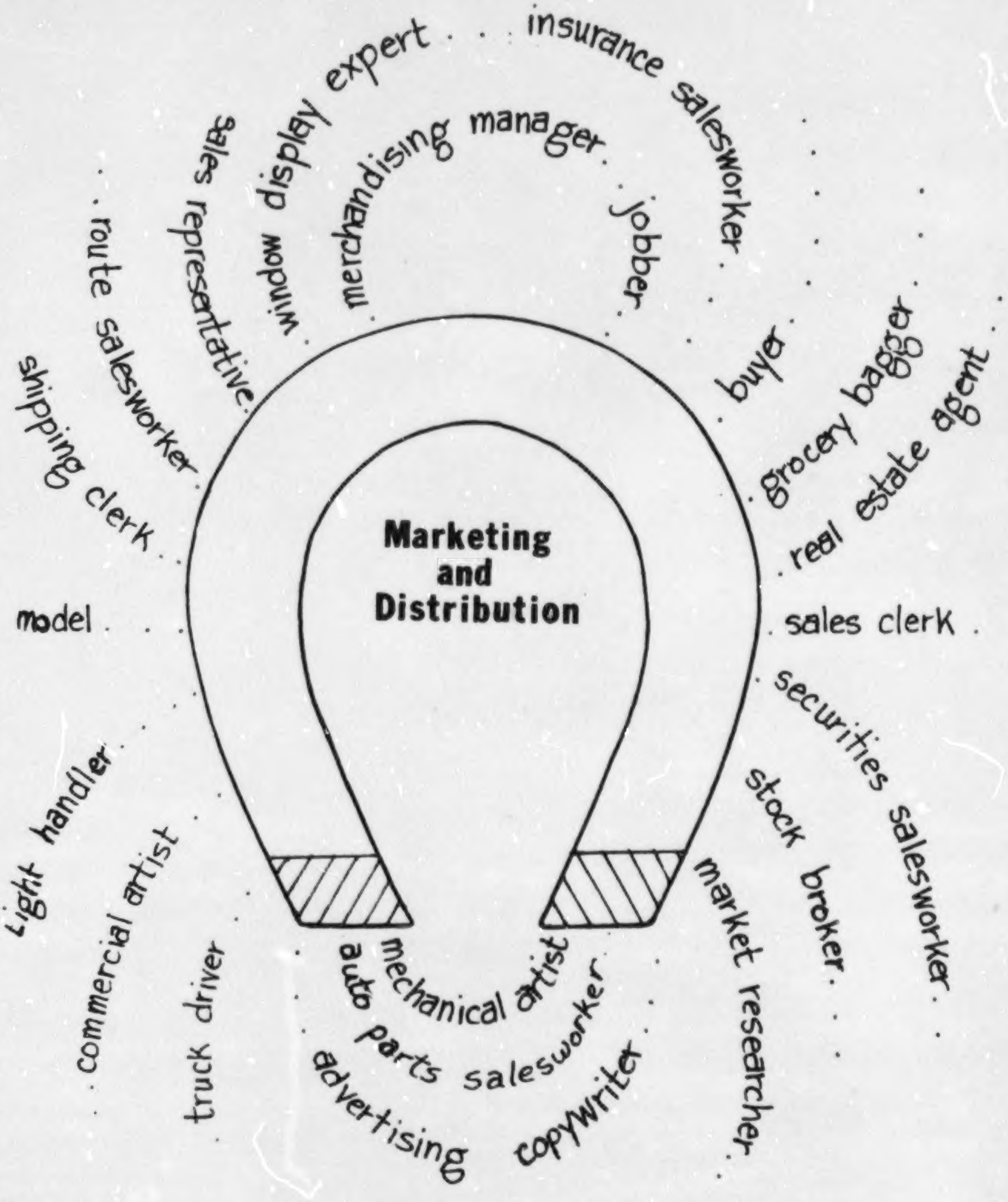
advantage: ____

disadvantage: ____

What are some of the possibilities of advancement for painter/paperhangers?

____

____


Marketing and Distribution
insurance salesworker
window display expert
merchandising manager
sales representative
route salesworker
shipping clerk
jobber
buyer
grocery bagger
real estate agent
model
sales clerk
securities salesworker
stock broker
light handler
commercial artist
truck driver
mechanical artist
auto parts salesworker
advertising copywriter
market researcher

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LENA ROSS, MECHANICAL ARTIST:
ADVERTISING BEHIND THE SCENES

Hi. My name is Jerry, and I'm interested in an artistic career with lots of advancement possibilities. I talked with my guidance counselor about what I'm looking for, and he suggested that I talk with a mechanical artist. So I made an appointment to interview Lena Ross, a mechanical artist who does "layout and paste-up" at a small local print shop. I didn't know anything about layout or paste-up, so I asked about that first. Then I found out a lot more during the interview.

"So, Lena, what does layout and paste-up actually mean?" I asked.

"Layout means arranging copy (printed words) and pictures on a piece of paper. Paste-up simply means pasting the copy and pictures onto the paper. Layout and paste-up involve combining pictures and words so that they look attractive. My finished product is called "camera ready copy," and a printer takes over where I leave off."

"What kind of copy and pictures do you arrange?"

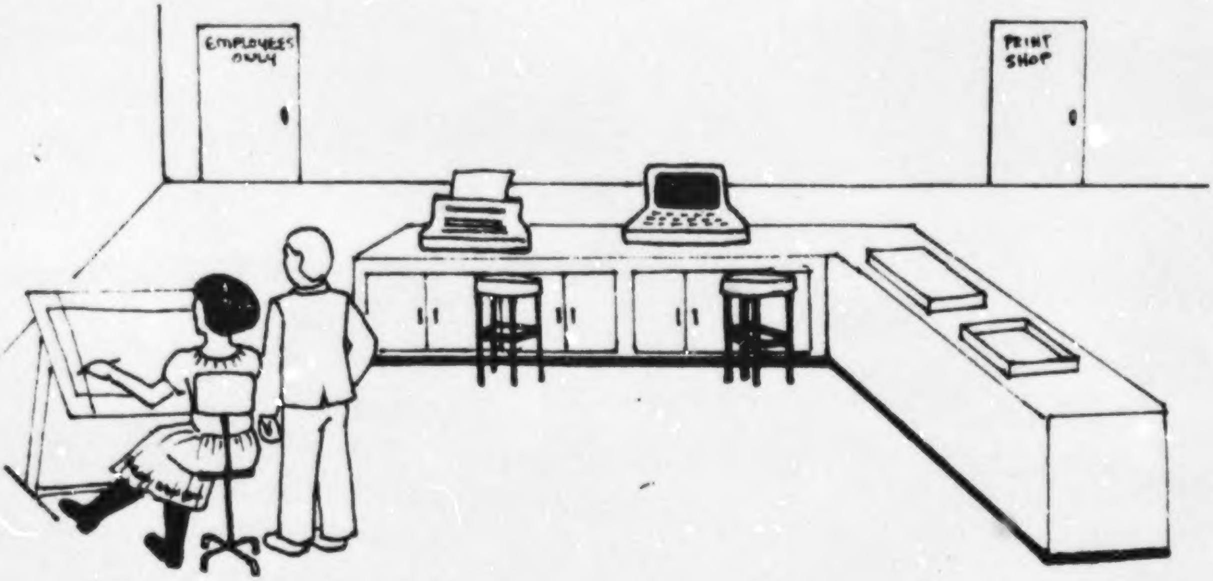
"Well, here at the print shop, my jobs are diverse. I design everything from business cards to newsletters and advertising flyers."

"Lena, I've been reading about the Marketing and Distribution work cluster, which involves advertising. How does your work fit into this work cluster?"

"Well, I work to make copy look attractive so that people get interested in what clients have to say. That's advertising, isn't it?"

"It sure sounds like it to me, but I've never thought about it before. I mean, I've thought about advertising workers like photographers and copywriters, but I never thought about the people who arrange pictures and words for magazines, for example."

"I know. It's sort of a 'behind the scenes' job. Basically, I work alone here with my light table, typesetting machine, and other tools."



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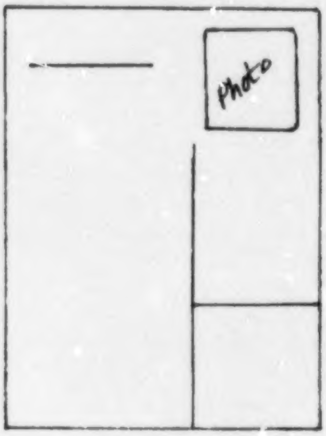
"What do you use your tools for?"

"You can watch me do this job from start to finish. That will give you an idea of how I use my tools to do my work. First, I read the 'specs' (specific instructions for the layout) and the copy. These are both supplied by the client. Sometimes a drawing or photograph is included with the specs. Other times, I draw one or choose one from a special 'all occasion catalog.' Next, I draw the mechanical."

"The mechanical?"

"Yes. That's the outline I'll use when laying out the pictures and the copy. Before I draw a mechanical, I must divide the paper into sections. Sometimes, I draw borders or add designs. I want the words and pictures to be spaced well. I don't want them to look crowded."



Mechanical

"Do you have to measure first?"

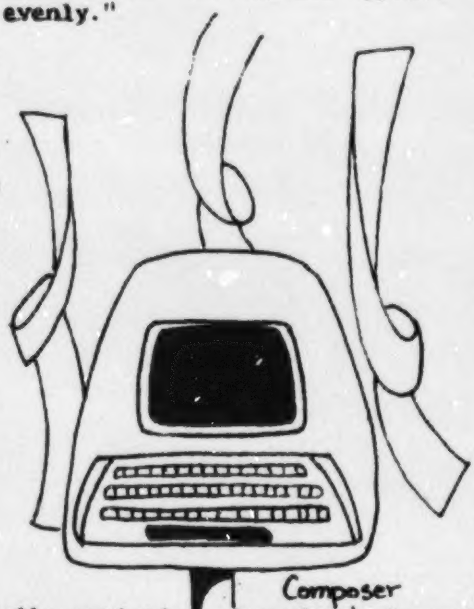
"Oh yes. I use basic math skills all the time. I look at the length of the copy, and I divide the mechanical into units called 'picas' I choose the size of print that will fit into the amount of space available. Then, I choose the style of print that seems best for the job. Next, I use a typesetting machine, or 'composer.' This machine is like a computerized typewriter which spaces words evenly in the size and style I choose. I use it by typing the words I want onto a special film paper. Then, I put the paper into a developer, see? It's ready for paste up now."

"Do you use regular paste or glue for paste-up?"

"When I worked at the ad agency, I used rubber cement, but here I use wax. I like it because it's sticky but easy to pull off of the mechanical if I see a mistake or don't like the way it looks. The waxing machine melts the wax and applies it to the paper evenly."

Near the light table I saw containers that held rulers, industrial razors, compasses, protractors, triangles, and other tools. I watched Lena use scissors to cut the printed words out so that they fit onto the mechanical neatly. I noticed that she measured carefully with a T square to make sure that the lines of print were even and straight. She used a fine point ruling pen to draw a border around some of the copy. Then she read the copy carefully.

"I do lots of proofreading, so I use my reading skills a lot here. Making a mistake in one word can cause all kinds of trouble. A client may refuse to pay for work with a mistake, and the print shop gets bad publicity. I've got to be really careful."



Composer

"What about art and other skills?"

"Well, it really helps if you're basically artistic. A mechanical artist should enjoy arranging things to make them attractive. Of course, after doing this kind of work for five years, I've also developed a good eye. My eye helps me center things, and line them up. Developing a good eye is a skill that comes with lots of on-the-job practice. Since I do many jobs each day, speed is really important here. Besides having a good eye, being able to type quickly and accurately helps me to work quickly."

"Lena, I want to enter a career field with lots of possibilities for advancement. Would you say that a mechanical artist has a good chance of advancing?"

"I'll tell you, Jerry. That's one of the greatest things about this type of work. The possibilities are endless. Mechanical artists can find work at print shops, newspapers, book publishers, and ad agencies, to name a few places. You can start your career by getting on-the-job training as a paste-up assistant at a large print shop or agency. As you learn new skills, you'll take on more layout responsibilities. You may become responsible for all layout and paste-up at a shop within a few years. Or you can begin training for this type of work at community colleges. A complete training program lasts two years. Personally, as an experienced mechanical artist, I learn new skills and shortcuts every day. I never stop learning at this job."

"Do you have any plans for advancement, Lena?"

"Yes. I want supervisory responsibilities. Eventually, I'd like to supervise the art department at an ad agency or a large print shop. I'm preparing myself now by meeting challenges with hard work and imagination. I also read trade magazines to keep up with new developments in the field, and to find out about employment requirements and possibilities. I send a cover letter and resumé to employers who offer a job I'm interested in."

"Well, you really seem to like this field. Are there any hazards or disadvantages to this type of work?"

"Well, I've got to watch out for sharp objects like razors. I've been cut badly. And my eyes get tired doing close work all day. Besides that, I spend most of my time on my feet, hunched over this light table here. It's tiring, and I wouldn't recommend this type of work to someone with a back problem."

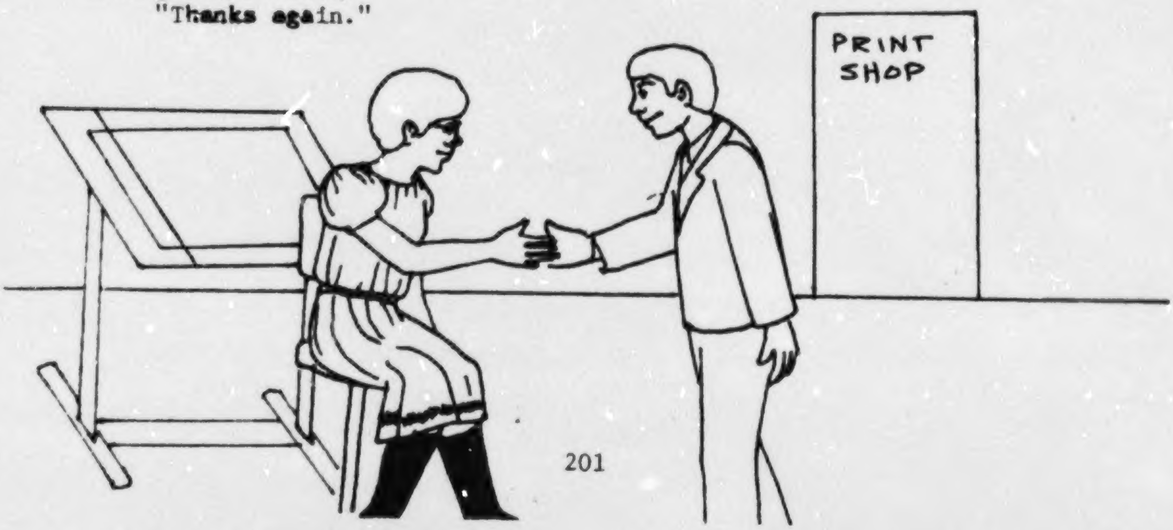
"But it's a clean, well-lighted work place, isn't it?"

"Yes, and I really appreciate my paid holidays, sick time, and medical insurance here. But most of all, I love this work because every job is different and challenging. I never get bored here. And the pride I take in my work makes me feel good about myself. I turn pictures and words into an attractive product. I do my best and I'm good at my work. That's rewarding to me."

"Gee, Lena, I've learned a lot today. Thanks. Do you know of any place that's looking for a paste-up assistant?"

"Try Broadway Printing. You can earn while you learn there, if they're hiring. Good luck."

"Thanks again."



MECHANICAL ARTIST:
WHAT DO YOU KNOW?

Define: layout: ____________________

paste-up: ____________________

Name 3 of a mechanical artist's on-the-job tasks.

1. ____________________

2. ____________________

3. ____________________

Name 3 tools or pieces of equipment that Lena uses on the job, and describe how each is used.

TOOLS	USES
1. ______	1. ______
2. ______	2. ______
3. ______	3. ______

How do mechanical artists use reading and math skills at work?

reading: ____________________

math: ____________________

Describe 2 ways of getting the training needed to be a mechanical artist.

1. ______________ 2. ______________

Name 3 places where a mechanical artist might work.

1. __________ 2. __________ 3. __________

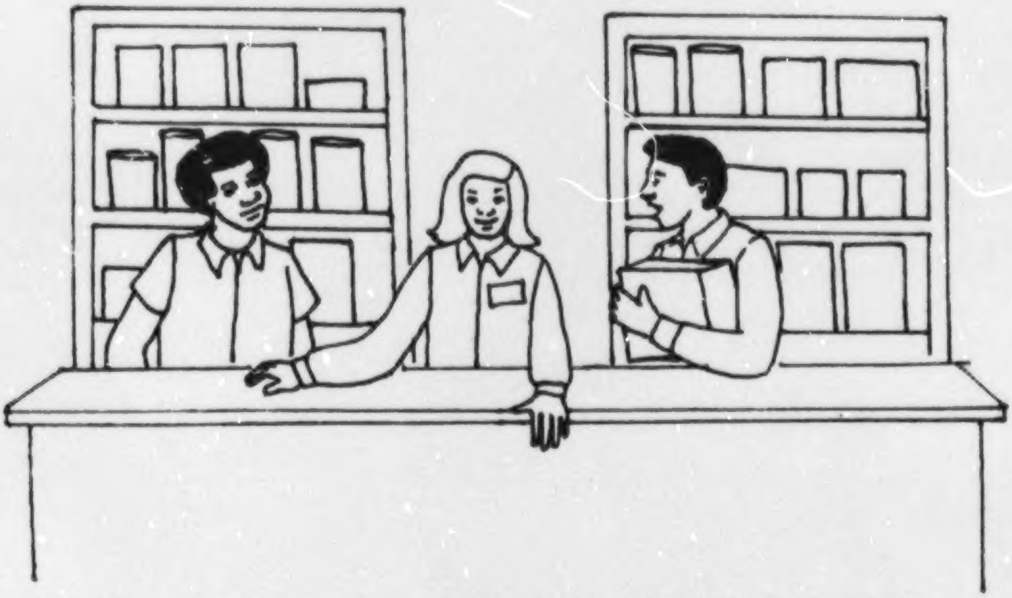
What are 2 advancement possibilities for a good mechanical artist?

1. ______________ 2. ______________

Name one benefit and one on-the-job hazard that Lena mentions when she talks about working conditions.

Benefit: ______________ hazard: ______________

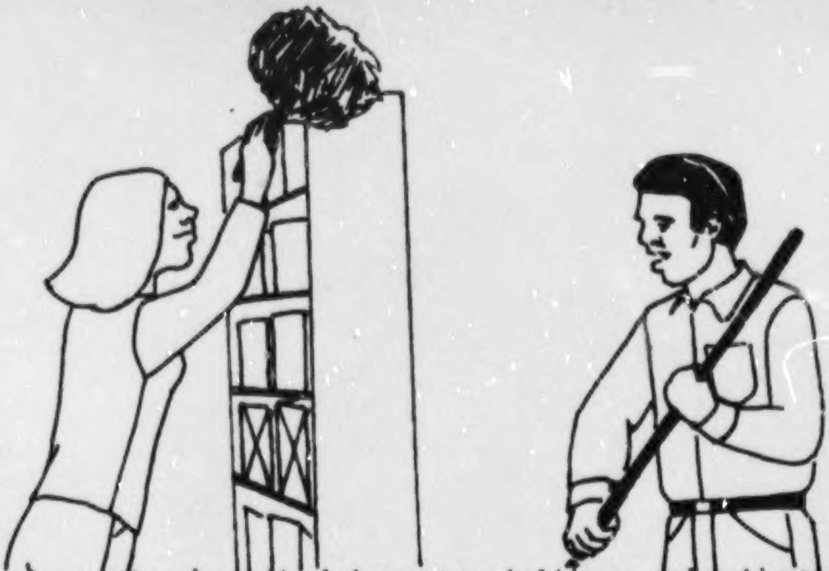
AUTO PARTS SALESWORKERS



We sell replacement parts and accessories for vehicles of all kinds,
Including cars, trucks, tractors, and boats. So we really use our minds.
We must be familiar with the parts stocked in our store,
So we do inventory. When we're out of something, we order more.
We use parts catalogs, and tune-up "specs," and refer to lists of prices.
We also keep records of the sales we make, and use the following devices:
When auto service stations need work done on flywheels or brake drums,
We use screwdrivers, wrenches, and lathes. So you see, we can't be all thumbs.
When an auto part is not in stock, we might substitute another,
Using micrometers which measure very well.
We use hand trucks to help us stock the shelves, and wrapping paper for items we sell.
We also use spark plug testers, and machines to rivet brakes,
Fan belt measurers and calipers; while measuring, we can't afford mistakes.

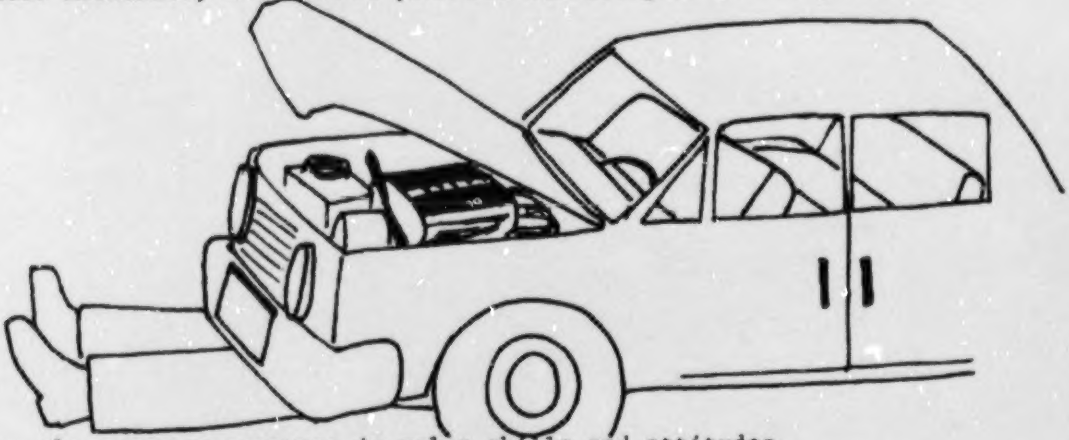
We file technical bulletins and update catalogs, so we must know how to read.
Being patient and polite with customers is another skill we need.
We use math often for measuring parts; and to figure bills, we add.
It's interesting work. We meet all kinds of folk, and working conditions aren't bad.
The store is clean and well lighted, and there's always plenty to learn.
And though we must often work 50 hours a week, that means overtime pay we can earn.
In auto parts sales, there's so much to do with parts, books, vehicles, and people too.

One disadvantage to this work is long hours of standing,
And sometimes customers get impatient and very demanding.
We also have to spend some time each week "housecleaning" with a broom,
But this helps us to know the store better, and gives us more work room.



At most shops, there's medical insurance, holidays, and paid vacation,
And there are jobs for auto parts salesworkers all over the nation
At wholesale shops and retail stores,
Stores with automotive departments, auto dealers, and more.
In a city, you might work for a truck or bus line,
Or a warehouse parts distributor might suit you fine.

For this work, it helps to be familiar with the uses of auto parts.
Courses in auto mechanics, and work on your own car are good training starts.



Your shop may also sponsor a course in sales skills and attitudes.
This is important at any sales job, because you'll lose customers if you're rude.
Business math comes in handy, and bookkeeping can help you advance.
And even if the first few months, you just deliver stock,
With sales skill and know-how, you'll have a chance
To manage an auto parts department, or a whole auto parts store,
Or be an on-the-road salesworker selling to garages door-to-door.
Getting really familiar with this work takes a year or two,
But auto parts saleswork has a good future,
And it just might be right for you.

D&D's Auto Suppy
920 EAST AVE
JAMESPORT RI.
298-561-8838

AUTO PARTS SALESWORKER:
QUIZ YOURSELF

What are some of the on-the-job skills and tasks practiced by auto parts salesworkers?

1. ______________________ 2. ______________________

3. ______________________ 4. ______________________

What are some of the tools or pieces of equipment that auto parts salesworkers use on the job? Name one use for each.

TOOLS	USES
1. ______________________	1. ______________________
2. ______________________	2. ______________________
3. ______________________	3. ______________________

Name two places where auto parts salesworkers can be found at work.

1. ______________________ 2. ______________________

Where can auto parts salesworkers get the training they need?

____

Describe how auto parts salesworkers use math and reading skills on the job.

math: ____

reading: ____

Name one on-the-job hazard and one advantage of this type of work.

hazard: ____

advantage: ____

What's one possibility of advancement for auto parts salesworkers?

____

ADVERTISING COPYWRITER

Writes the words for advertisements which help sell products and services of clients.

ON-THE-JOB TASKS

Gets an assignment directly from client or through the account executive (employed by the ad agency to work closely with clients).

Finds out what image the client wants to project, and researches to find out about potential customers. Since different groups of people are often attracted to different advertising techniques, the idea is to write an ad that appeals to the group of people most likely to buy the item or service. Some advertising copywriters specialize in marketing one type of product or in appealing to one group of people, such as young men between the ages of 15-25.

Thinks about the product or service to be advertised. "How does it help people?" "Why is it needed?"

Keeps eyes and ears open to find new and interesting ways to tell about this product.

Tries to find the "big idea" that will get people excited enough to buy the product.

Decides what to say in ad.

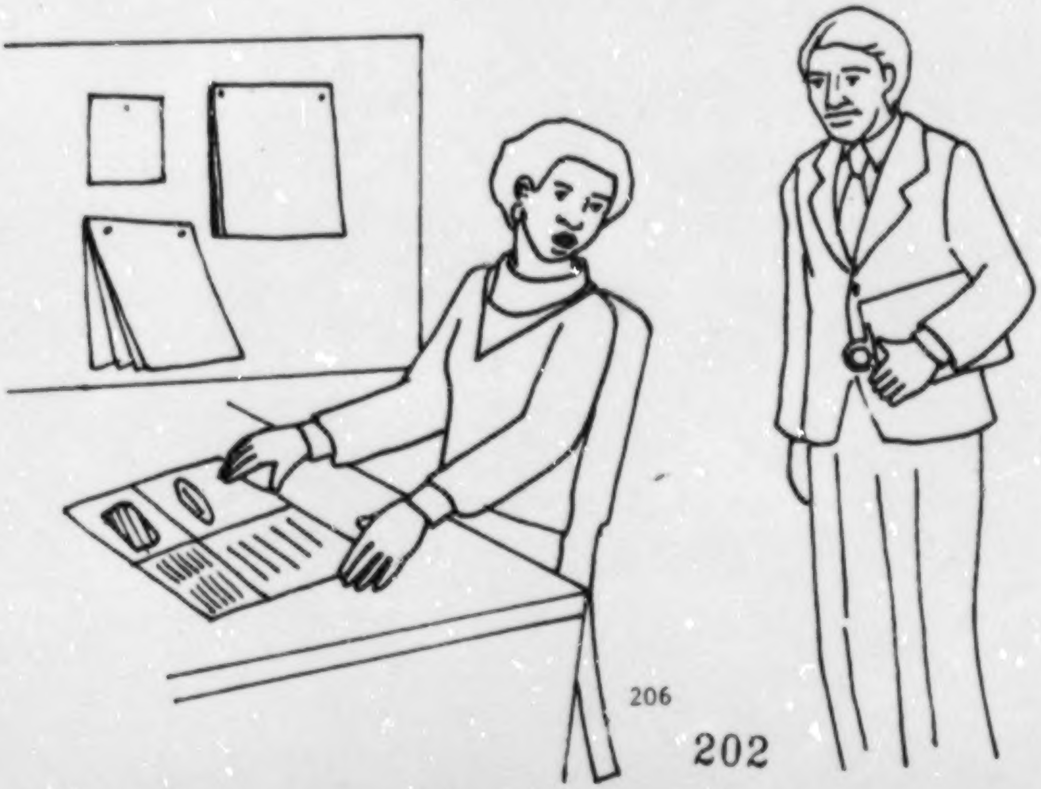
Writes many "drafts," different ways to present this idea.

Meets with art editor to get ideas for the artistic layout of the ad.

Meets with account executive to see if ad will please client. Since account executives represent clients, a copywriter may have to work hard to convince the account executive that your ideas are good.

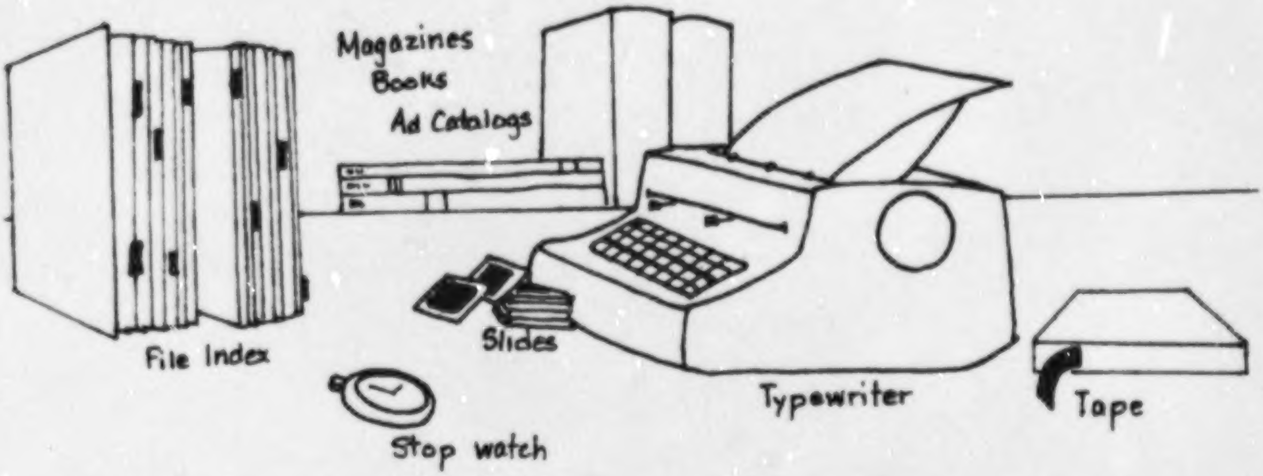
Works up a storyboard with artists' pictures and scripts.

Times scripts to make sure they are not too long.



TOOLS AND EQUIPMENT

Library called "information retrieval system," found in business libraries
(This system contains information about products and industries.)
File index for information retrieval system
Microfilm, microfiche
Magazines, books, ad catalogs
Slides
Tapes
Typewriter
Stopwatch to time spoken ads or commercials
Photos of models used in casting for different commercials
Video equipment for casting commercials
Resumé and a portfolio of written work



WORK PLACES

Ad agency offices pay highest salaries and include work in many other work places such as:
offices of clients,
business libraries,
meetings out of town.
Department stores,
manufacturing companies, and
shopping centers also hire advertising copywriters to write their own ads.
Free lance copywriters may write at home.

TRAINING NEEDED

College degree in liberal arts, business, or English
Special college classes in copy writing or advertising and marketing

READING AND MATH USED ON THE JOB

Reads for ideas:
magazines, books, microfilm, microfiche, library documents and other ads
Uses math to time ads and commercials

OTHER SKILLS NEEDED ON THE JOB

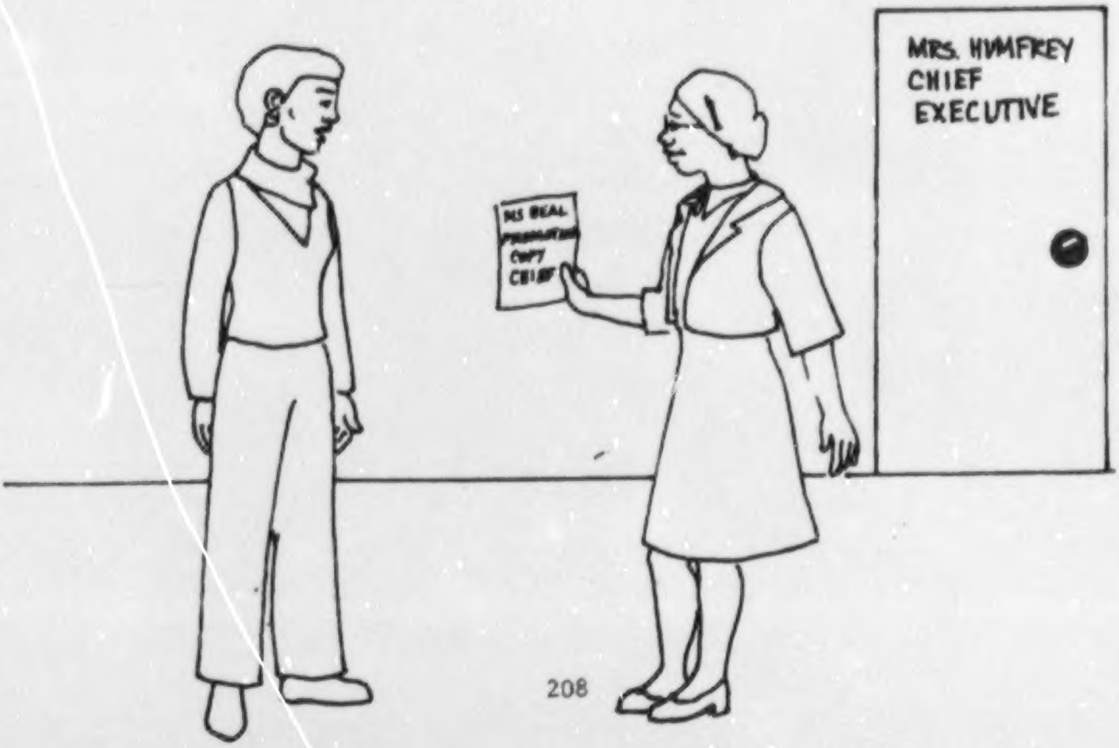
Writing, with special attention to grammar and spelling
Imagination
Sales ability
Enthusiasm
Ability to meet deadlines under pressure

ADVANCEMENT POSSIBILITIES

Creative supervisor
Account executive (works closely with advertising managers of client firms)
Copy chief
Advertising manager

WORK CONDITIONS

Advantages:
  Work is different each day
  Works both alone and with others, usually in pleasant office surroundings
  Medical insurance, vacation and sick time benefits are available to non-free lance advertising copywriters
Disadvantages:
  Advertising deadlines cause a pressured work environment and often, irregular work hours



COPYWRITER QUIZ

Name 3 skills and on-the-job tasks of an advertising copywriter.

1. ______________________________

2. ______________________________

3. ______________________________

Name 4 tools or pieces of equipment that advertising copywriters use on the job.

1. ______________ 2. ______________

3. ______________ 4. ______________

Name 3 places where advertising copywriters may be found at work.

1. __________ 2. __________ 3. __________

Describe the training needed by an advertising copywriter.

____

Name 3 important skills needed by advertising copywriters.

1. __________ 2. __________ 3. __________

Name one advantage and one disadvantage of working as a copywriter.

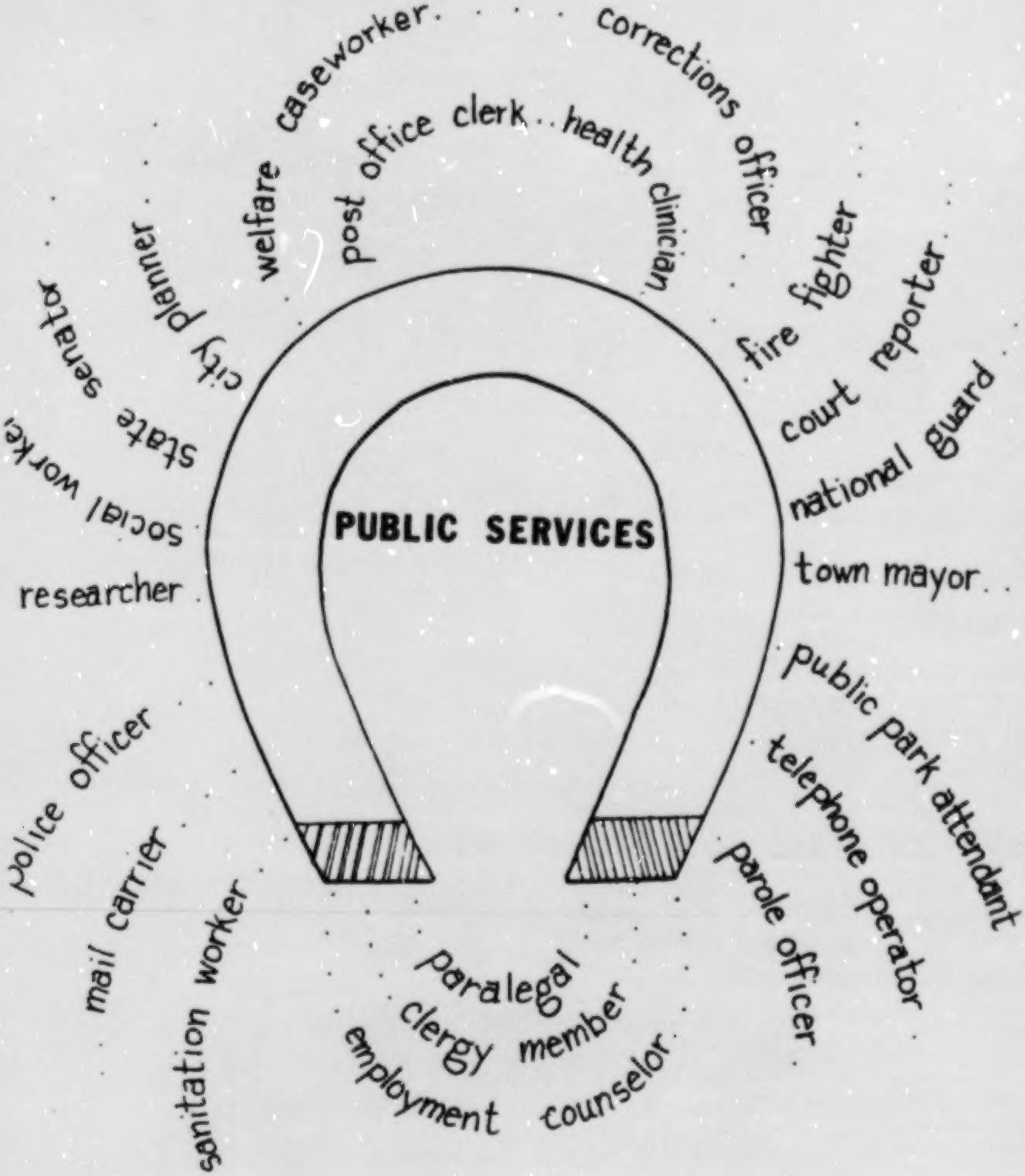
advantage: ______________________________

disadvantage: ______________________________

What are some of an advertising copywriter's chances for advancement?

____

____


PUBLIC SERVICES
welfare caseworker
corrections officer
post office clerk
health clinician
city planner
fire fighter
court reporter
state senator
national guard
social worker
town mayor
researcher
public park attendant
telephone operator
police officer
parole officer
mail carrier
sanitation worker
paralegal
clergy member
employment counselor

CLERGY MEMBER: MINISTER

Karen: Hello, are you Reverend March? I'm Karen Palen.

Rev. March: Hello, Karen. Yes, I'm the Reverend but you can call me Mr. March.

Karen: OK, Mr. March. Thanks for seeing me. I really appreciate it when adults are willing to answer questions I have about their jobs. I think I explained that I need this information to help me with some workbook activities I'm doing in school.

Rev. March: Well, why don't you just start by asking me some of those questions you have on your note pad?

Karen: OK, I know that this is a public service job, but why? What do you do on the job?

Rev. March: Well, my job is a public service because I take care of the spiritual and moral needs of my congregation. A congregation is a group of people who come together to worship. I conduct the weekly worship service and special services like marriages, funerals, baptisms, and communions. I spend a lot of time talking with people. I visit the sick in hospita and at home. I also visit and comfort families who have lost loved one. I counsel church members or others who come to me with problems or difficulties. I also plan and write my sermons. I write a monthly column for the church newsletter, and I often write a column for the local newspaper.

Karen: Wow, you must really keep busy. I notice you have three walls full of books. That's quite a library. Do you read a lot?

Rev. March: I read whenever I can. I use what I read to help me prepare my sermons or counsel those who come to me needing help. As I'm reading, I guess you could say I'm also studying, because I remember what I've read and use it to help me in my work.

Karen: Would you say books are your tools?

Rev. March: Oh yes, Karen. And these books include theology (the study of God), histories, dictionaries, curriculum books, contemporary novels, newspapers, magazines, and especially the Bible. Some other tools I use are a communion set, my robes or vestments for church services, baptismal font, pulpit, and hymn books.

Karen: Mr. March, could you tell me a little about what you wear?

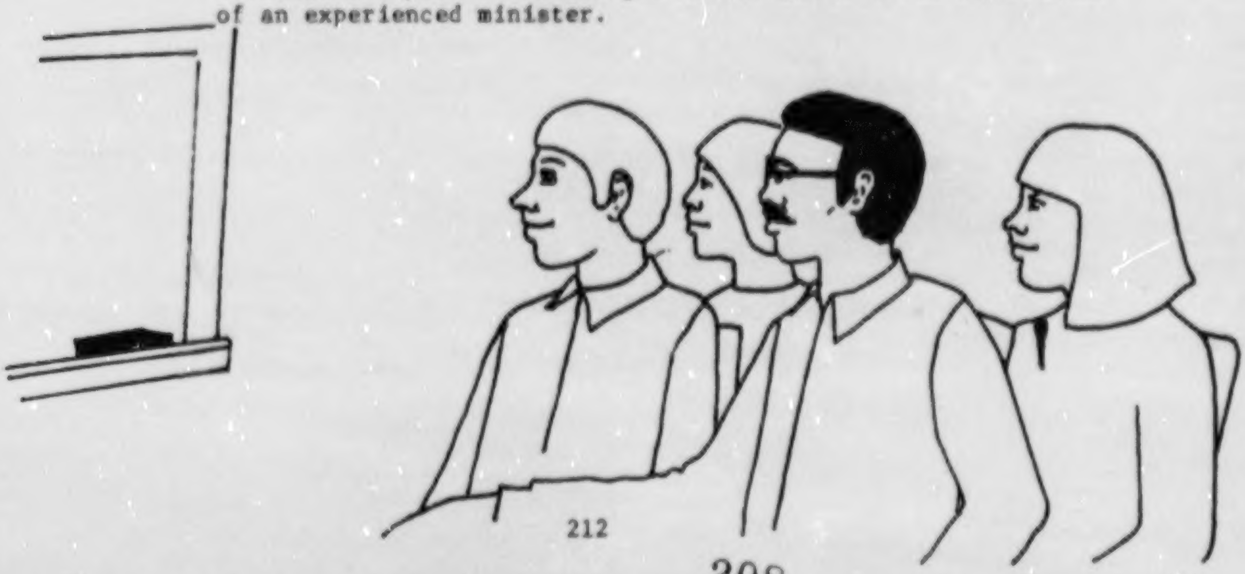
Rev. March: Well, Karen, for some congregations the robes or vestments are very important and would be used at all services without fail. In other congregations they are not so important and would be used only on special occasions. Most of the time I just wear a suit and white collar for the church service. In some areas, like big cities, I might wear a collar more often. That way I'd be known as a minister when I went to hospitals or homes on visits.

Karen: Would you say that the church building, hospitals, and homes are your work places?

Rev. March: Yes, Karen. Ministers work in more places than you think. For instance I think of the church classrooms and the office here as being work places. Oh, and sometimes I attend meetings with other clergy members or community groups at restaurants or the town hall, and I think of those as work places, too. Other ministers work in missions overseas or as chaplains in the armed forces. And some teach in colleges or at seminaries.

Karen: Mr. March, did you need a lot of training to become a minister?

Rev. March: Yes. After I graduated from a four-year college, I attended a theological seminary for three years. At the seminary, I learned about the Bible, and how to be a minister. My seminary studies included one year of on-the-job training under the supervision of an experienced minister.

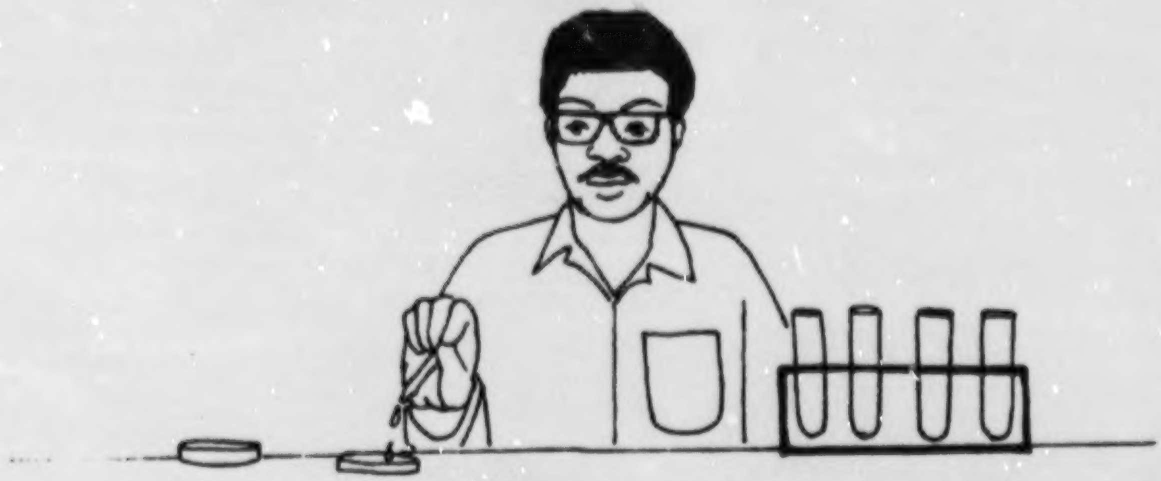


Karen: Mr. March, how did you first decide to go into the ministry?

Rev. March: Well, Karen, I decided in a roundabout way. I had always gone to church and participated in church activities when I was a youngster. And I have a few relatives who are clergy members. But during high school I had a real liking for science and majored in science when I went to college. I got a degree in chemistry and went to work for private industry. I met my wife while attending college, and after graduation, we got married and both worked. Although we both enjoyed our work, something seemed to be missing.

Karen: So what did you do about it?

Rev. March: Well, after five years working as a chemist, I decided I wanted to go back to school. I felt a special calling to join the ministry, so I decided to go to theological seminary. A theological seminary is a special school for ministers. My wife was a tremendous emotional support at this time. She continued to work, and I was able to devote all my time to studying. I spent three years at theological seminary and then spent one extra year working to earn a masters degree. Then I was ready to minister to my own congregation.



aren: How do ministers get placed at a church?

ev. March: Well, the seminary has a placement office that keeps a listing of churches that need ministers. Then, it's just a matter of setting up interviews and visiting with the different church congregations. Then you wait until a congregation offers you a position which you decide to accept.

aren: How long do ministers stay in one place?

ev. March: Well, Karen, there is some moving around, and I've known ministers who have stayed in a place for only two years. Then there are ministers who stay in one place for 28 years. There is no average length of time, and some movement from congregation to congregation helps keep you from getting in a rut.

aren: Mr. March, what would you say your working conditions are like?

Rev. March: The working conditions here are pleasant. Since I'm a model for my congregation, I try to be a loving, helpful person at all times. I have a great deal of time to read and study. I spend a lot of time talking with people, especially when I counsel and when I'm attending meetings. But the hours are often long and irregular. I don't work an average week. I'm on call all the time. Most nights I have meetings to attend, so I'm not home. Sometimes this is difficult for my family.

Karen: Your job seems very demanding, but you're supported by the congregatior aren't you?

Rev. March: Yes, the church provides a home for me and my family. In some other churches a car would be provided also. A minister's salary is low, but the things supplied by the church sometimes make up for that. When special services are performed, such as marriages or funerals, the family involved might give the minister a money present.

Karen: It sounds to me like it takes a special kind of person to be a minister: someone who cares more about people than about money.

Rev. March: That's right, Karen. And you know, even after ministers retire, they remain active by helping out as guest ministers for nearby churches. It's a way of life, not just a job.

Karen: I have just two more questions. I know that reading is a big necessity. But how important is math, and what other academic skills do you use?

Rev. March: The math is necessary because I use it to balance the church budget. But you're right. Reading is still most important. As for other skills, well, I think public speaking and writing may be two major skills used on this job a lot. I have to be able to speak well in front of my congregation and in committees as well. And I've got to be an understanding person. Being a good listener might be the most important skill of all.

Karen: Well, Mr. March, you really have given me a lot of information and insight into what it's like being a minister. Thank you very much.

Rev. March: I'm glad I could be of help, Karen. So long now.

Karen: Goodbye, Mr. March.

CLERGY QUIZ

Name 3 of the services that clergy members perform for their congregations.

1. ______________________________
2. ______________________________
3. ______________________________

What are 3 tools that Reverend March uses on the job?

1. __________ 2. __________ 3. __________

Name 3 places where a clergy member might be found at work.

1. __________ 2. __________ 3. __________

What kind of training prepared Reverend March for the ministry?

____

How do clergy members use reading and math skills on the job?

reading: ______________________________

math: ______________________________

Besides reading and math, what other skills or personal qualities do clergy members use on the job?

____

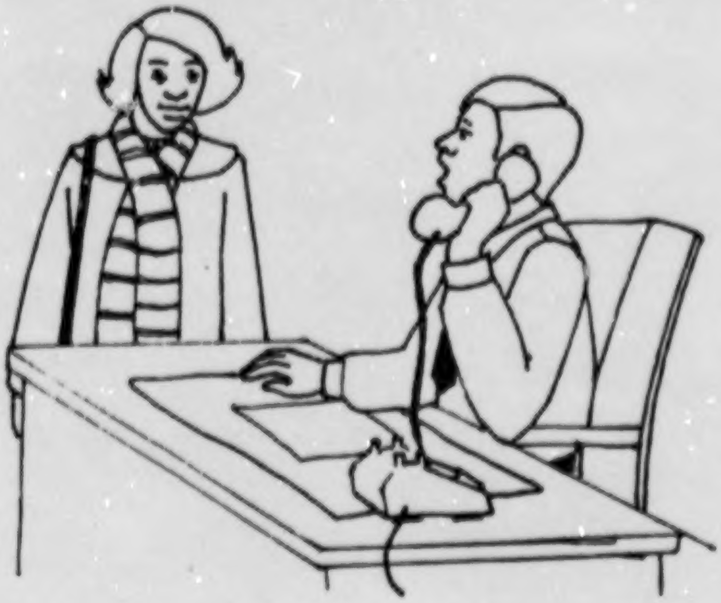
Name one benefit, and one disadvantage that comes along with being a clergy member.

benefit: ______________ disadvantage: ______________

______________ ______________

SOME FACTS ABOUT EMPLOYMENT COUNSELORS

Employment counselors keep up-to-date information about the local, state, and national job markets. Their work includes finding out about jobs and communicating what they know to others. They know about job availability, the education and training needed for jobs, and the salaries, benefits, outlook, and work conditions of different occupations. They keep their information up-to-date by reading reference books, newspapers, magazines, and government publications. They also talk on the phone regularly to local employers, and sometimes they visit employers' work sites.



Employment counselors use the information they gather to help people (counselees) plan, prepare for, and find work for which they are best suited. They must be able to relate easily and well to all kinds of people. It's also important that they can understand points of view which may be very different from their own. Employment counselors must be flexible in their dealings with people.

When employers need to fill job openings quickly, employment counselors have to make quick decisions based on their research and on their intuition. It is important that both employers and counselees trust employment counselors' judgements about the "right person for the right job." The outline on the next page shows how employment counselors go about putting the "right person in the right job."

MORE FACTS ABOUT EMPLOYMENT COUNSELORS

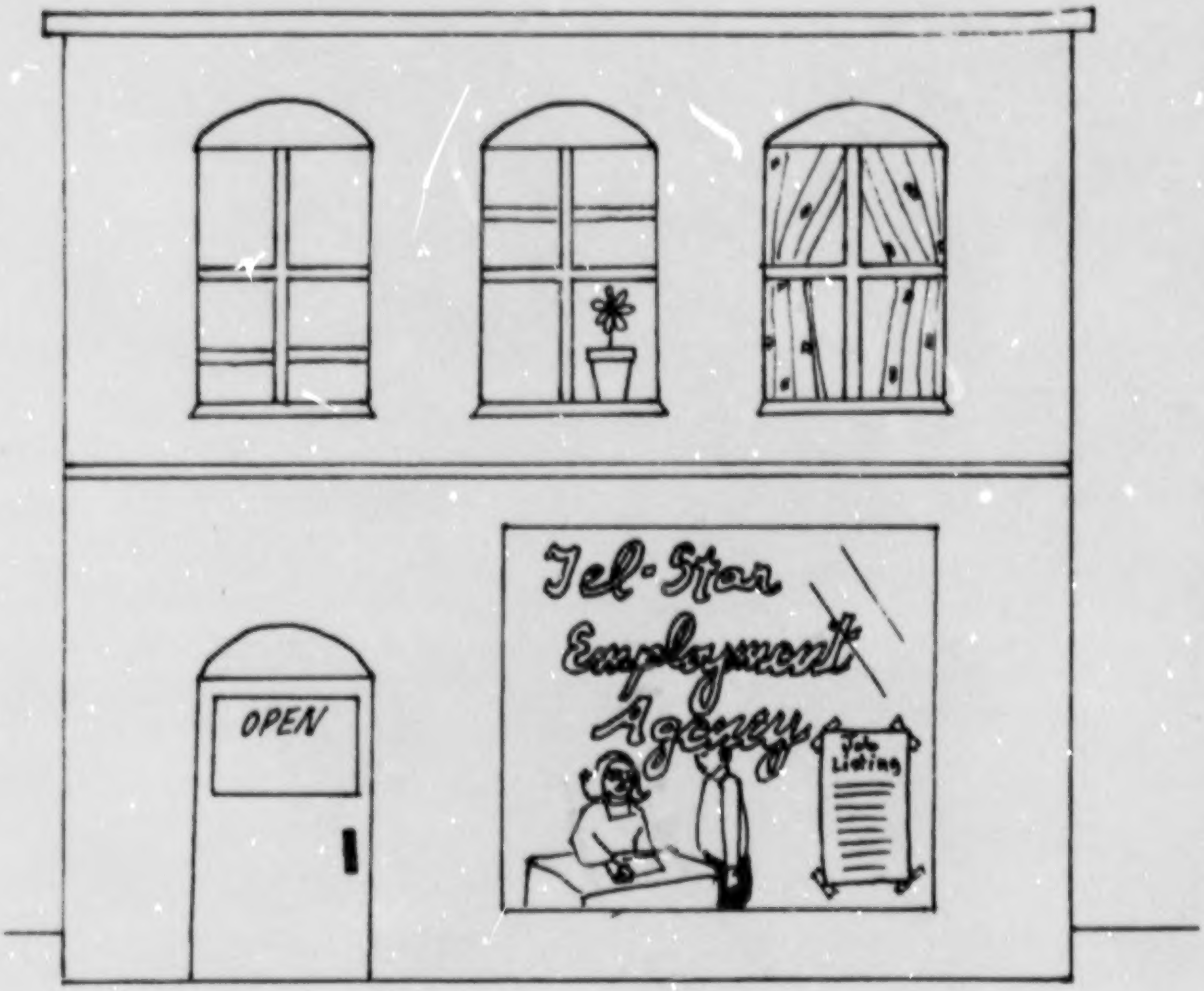
I. To help counselees find satisfying work, employment counselors
    A. Interview counselees.
        1. Explain the job-finding services available at the employment agency.
        2. Find out what kind of help the counselees are looking for.
        3. Find out how counselees approach problem solving.
        4. Discuss the counselees' personalities, interests, skills they think they have, skills they think need strengthening.
    B. Test counselees.
        1. Give interest and aptitude tests.
        2. Score and interpret tests.
    C. Research counselees.
        1. Obtain records of counselees' training and work experience.
        2. Contact counselees' former employers, usually by telephone.
    D. Offer guidance to counselees.
        1. Help counselees evaluate their abilities and interests.
        2. Help counselees decide for themselves on the best career plans for them.
        3. Help counselees prepare their resumés.
    E. Refer counselees to employers.

II. To help employers find satisfactory workers, employment counselors
    A. Talk on the telephone to employers.
        1. Find out about job openings employers have.
        2. Find out about job openings employers expect to have.
        3. Find out what kinds of workers the employers prefer.
    B. Suggest appropriate counselees to fill job openings.
        1. Send counselees' resumés to employers.
        2. Arrange employer-counselee interviews.

Other important skills for employment counselors are writing reports and organizing information.

STILL MORE FACTS ABOUT EMPLOYMENT COUNSELORS

Employment counselors work for private agencies, for private industry, or for tax-supported agencies. Depending on the work place, employment counselors' training requirements, advancement possibilities, and working conditions are different. The chart on the next page shows the differences.


Tel-Star Employment Agency
OPEN
Job Listing

THE CHART BELOW SHOWS SOME IMPORTANT DIFFERENCES AMONG:

WORK PLACES**	TRAINING NEEDED	ADVANCEMENT	WORK CONDITIONS
Private employment agencies.	High school. About three months of formal instruction. Sales experience can be helpful.	After about five years of on-the-job experience, counselors with initiative and ability can expect to earn more money. Counselors may set up their own agencies.	Highly competitive. Salary is on commission. Overtime may be necessary. Depending on size of agency, there may be health insurance, pension plans, paid vacations, sick leave.
Private industry.	B.A. in one of the following: sociology, psychology, or educational guidance and counseling.	After several years of on-the-job experience, counselors willing to give up working directly with counselees can advance to supervisory or administrative work.	Assistance from a secretarial staff. Paid vacations, sick leave, pension plans, insurance coverage. Little or no overtime.
Tax-supported agencies. For example: public employment agencies, community agencies, prisons, training schools for delinquent youth, mental hospitals, Veterans Administration, Bureau of Indian Affairs. Colleges and Universities.	M.A. in one of the following: social work, personnel work, psychology, guidance and counseling, or public administration. Must pass qualifying exam, and sometimes a Civil Service Exam, before working in any tax-supported agency.	After several years of on-the-job experience, counselors willing to give up working directly with counselees can advance to supervisory or administrative work.	Assistance from a secretarial staff. Paid vacations, sick leave, pension plans, insurance coverage. Little or no overtime.

**Employment counselors do most of their work in well-lighted, well-heated (or air conditioned) offices. Some Employment Counselors visit employers at their work sites.

EMPLOYMENT COUNSELOR:

QUIZ

Name 4 of an employment counselor's work tasks.

1.____

2.____

3.____

4.____

Name 3 tools or pieces of equipment which employment counselors use on the job.

1.______________ 2.______________ 3.______________

Name 3 different places where employment counselors can be found at work.

1.____

2.____

3.____

How do training requirements differ for employment counselors working at private and at tax supported agencies?

private:____________________ tax supported:____________________

What are 3 skills which employment counselors practice on the job?

1.____

2.____

3.____

Describe an employment counselor's work conditions.

____

____

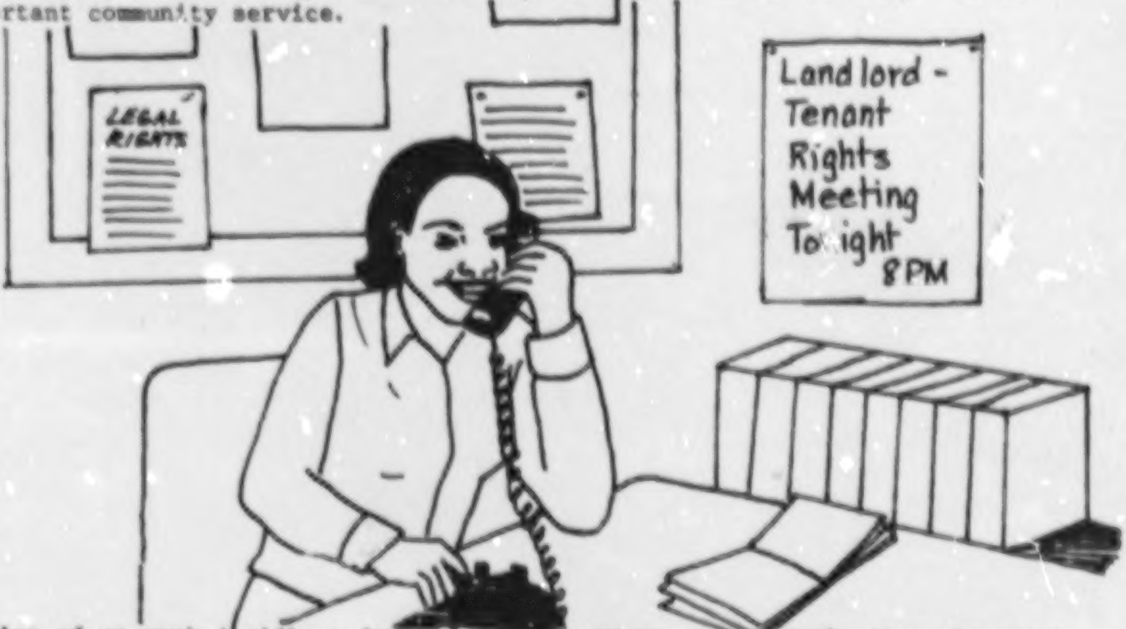
Name the advancement possibilities for employment counselors working at private and tax supported agencies.

private:______________________________________

tax supported:__________________________________

KAREN FRYE, A PARALEGAL WITH INITIATIVE

Hi. My name is Karen Frye, and I work as a paralegal at Legal Services in Powell City. Legal Services is an organization that represents people who can't afford to pay private lawyers. People come to Legal Services for help with landlord problems, welfare payment problems, job discrimination problems, and even marriage problems. They know that they can depend on us for help. We're an important community service.


LEGAL RIGHTS
Landlord - Tenant Rights Meeting Tonight 8PM

A lot of my work is like a lawyer's work. Of course, I don't have the background or training that a lawyer has, and I don't go to court. But I do represent clients at pretrial hearings, and that's where many cases are actually settled. Some of my work tasks are secretarial, too. I work in my office with a phone, appointment calendar, reference books, legal documents, and file cabinets which are filled with useful information. I also work at the library, at people's homes, and at community centers. By doing legal representation and clerical work, I help people in the community directly. I help them indirectly, too, by getting lots of routine paper work out of the way for lawyers.

When clients call for help, I set up interviews with them so that I can learn about their problems. Sometimes, I visit people in their homes to get a firsthand look at how they live. I talk with a lawyer about each case, and we decide how we can be most helpful.

Working on a case requires special preparation. I take notes on the history of the case, and then I research similar cases. I also prepare to represent my client by reviewing the general procedures I should follow during the hearing. Then, I'm ready to speak for my client at the pretrial hearing.

Helping people has always been important to me, and lawyers and paralegals work together on this. We not only help people who come to us with specific problems, but we also offer workshops to help everyone in the community learn about things like welfare or landlord-tenant relations. Since I like working directly with people, representing clients and taking part in community workshops are my favorite parts of being a paralegal. But lots of my responsibilities include clerical work like organizing and filing documents and mail, or adding inserts (revisions) to our files as laws change, or preparing routine forms like tax returns or inheritance papers, and even ordering office supplies.

You know, even though I never liked school too much, I've always been a reader. Why, as long as I can remember, I've always been involved with books: adventures, biographies, science fiction, you name it. And to tell you the truth, reading sure comes in handy on the job here. I use a legal dictionary and a law encyclopedia to look up legal words or terms, and I refer to consumer manuals and law books often. Of course, when I started this job, I wasn't familiar with most of the legal terms or procedures that I use all the time now. You wouldn't believe how much I've learned by reading on my own! But even though reading is an important skill on this job, I'd say that the most important skill I've developed is INITIATIVE. Initiative is the willingness and ability to start things, and to do what needs to be done without waiting to be told. Of course, I have to follow directions too, but no one tells me exactly how to spend my time. I research thoroughly and do good work because my clients depend on me. For me, initiative means taking whatever steps are necessary to do my job well, and using my own judgement too. I use typing skills on the job too, and math skills for figuring out welfare budgets and rents.

I hope all this talk about skills hasn't scared you away. You don't need a four-year college degree to begin work as a paralegal. Some two-year colleges offer special programs designed to prepare students to be paralegals. But participation in a special college program for paralegals is not the only way to prepare for this sort of work. Graduates from most two-year college programs are eligible to apply for paralegal work. And if you've never gone to college, but have a high school diploma and lots of community work experience, you may also be eligible for the job.

You know, when I first started working here, I didn't know much about the job **at all**, and neither did Albert or Myra, the other paralegals who had just been hired.

During the first week, we were all sent to North Mitchtown for a week of training. During the training course, we learned about the kinds of things that we'd be responsible for as paralegals. After that, it was up to each of us to take initiative, and to learn as much as possible on the job.

I've been working here for three years now, and I've learned quite a bit about the legal world, and about myself too. I've learned a lot about what I like to do, and what I don't like to do. I know that my strengths involve working directly with people. Albert and Myra have learned about their strengths too. Albert is now the law office manager. He makes sure that things run smoothly, and he's responsible for managing time schedules, for making appointments, and for delegating other clerical work to Myra and me. Meanwhile, Myra's specialty has become "matrimonials." She handles all the legal aspects of marriages and divorces. So you see, with experience, it's not hard to specialize and advance as a paralegal. We get pay raises every year, and many paralegals also belong to a union. This union distributes an official paralegal's newsletter which informs us of various legal programs and employment opportunities in firms all over the country. To tell you the truth, I've considered finding work with a private legal firm for more money, but the work I do here at Legal Services involves lots of direct contact with people who are really in need. I like feeling that I'm contributing to an important public service.

Even though I like my work, I'll tell you, it has its difficulties. Probably the hardest part is learning not to take work home. When I first started working here, I didn't know my limits. So after helping people with serious legal problems all day long, I also took paper work home with me. Soon, I was feeling "burned out." I didn't have energy for anything else, not even volleyball or soccer practice. I talked with Albert and Myra about it, and found that they were feeling just as run-down as I was. We call it "paralegal burnout, and it comes from trying too hard. We want to help people to gain more control over their lives, but we've also got to make sure we have time for our own lives. That was a hard lesson for me to learn. Now, I make sure I do all I can during the working day, and then I come back with a fresh outlook in the morning. And you know, I think I'm more productive this way.

DON'T FORGET VOLLEYBALL 8:30 TONIGHT!

As far as benefits go, we paralegals all earn good vacations, sick time, and hospital insurance. And we can take unpaid maternity or educational leave without losing our jobs. Besides all that, paralegal work is just a good way to learn about lots of different kinds of people and the American legal system. I feel prepared for many different types of work now that I've got experience in clerical work, research, and public relations. And that's a benefit. But for me, the greatest benefit is that the initiative I take on the job stays with me when I'm not working. It's a great feeling to know that I can start things. I have a lot more confidence in myself than I ever have before. In fact, last month, I started the first women's soccer team in Powell City!

PARALEGAL:

QUIZ WHIZ

Name 3 of a paralegal's work tasks.

1. ________

2. ________

3. ________

Name 4 tools or pieces of equipment used by paralegals on the job.

1. ________ 2. ________

3. ________ 4. ________

Where do paralegals do their work?

____

How do paralegals use reading and math skills on the job?

reading: ________

math: ________

Name a personal skill that's important for paralegals to develop.

____

What kind of training is required of paralegals?

____

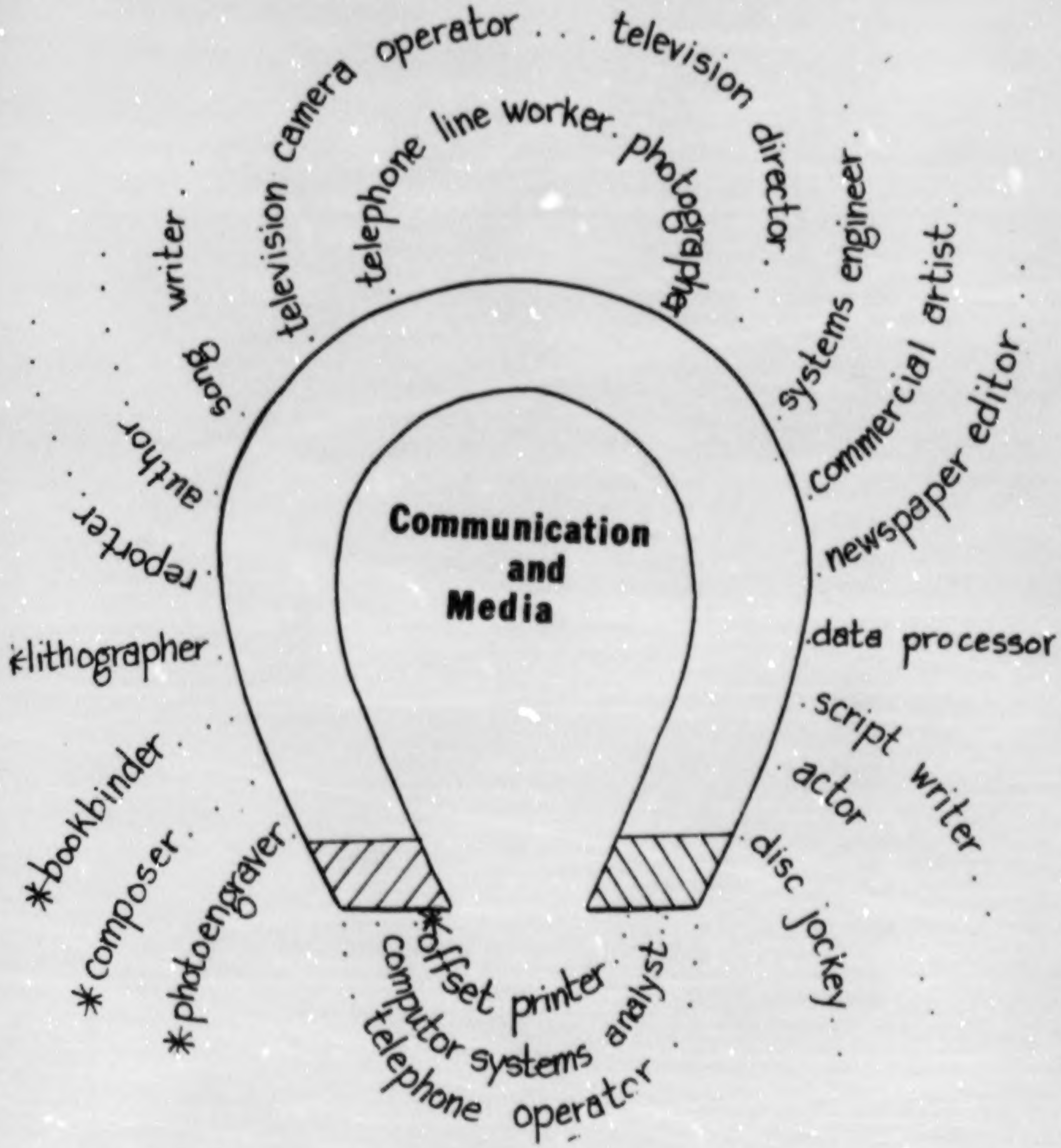
Name one advantage and one disadvantage of paralegal work.

advantage: ________

disadvantage: ________

What are some of the possibilities of advancement for a paralegal?

____


Communication and Media
television camera operator
television director
telephone line worker
photographer
song writer
systems engineer
commercial artist
newspaper editor
author
reporter
lithographer
data processor
script writer
actor
*bookbinder
*composer
*photoengraver
*offset printer
computor systems analyst
telephone operator
disc jockey

* Apprenticeship training is offered for each of these occupations.

OFFSET PRESS OPERATOR:

MARGIE TRAPINZO REPORTS TO WORK

Margie: Hi, I'm Margie Trapinzo and I'm reporting for work. Rita Manuel called me yesterday to say that I got the apprenticeship position.

Frank: Have a seat, Margie, and welcome to the crew. My name is Frank Reynolds.

Margie: To be honest with you, Mr. Reynolds, I was surprised I was chosen for the position. I was really afraid I didn't have enough experience.

Frank: Margie, we were very impressed with you during your interview. This type of work requires someone who's alert, responsible, and mechanically inclined As for your experience, we were glad that you'd had some exposure to journalism and art in high school. But to be quite frank, experience isn't something we look for in an apprentice. Sometimes it's easier for us to train someone who's new to the business than to retrain someone with a lot of experience to fit our shop. As an apprentice, you'll be expected to learn as you go along. On-the-job training is the way most people learn this trade, though there are also technical training schools where people can get training. We do like our employees to be good at reading and math so that they can find mistakes in printed copy. And it's important that the workers here can do enough math to estimate the costs of printing jobs and to order materials. Judging from your interview and resumé, you'll have no problem with these skills.

Margie: What will I be doing here?

Frank: One advantage of learning in a small shop is that you can learn to do everything, from taking customers' orders to running the press. Since it's a small print shop, we train our people to do everything. You see, in most big printing agencies, an employee is expected to do just one task, forever and always.

Margie: So I get a chance to do a lot more, huh? Just what is "everything"?

Frank: "Everything" means taking customers' orders, estimating the cost of jobs, ordering materials and supplies from companies, using the typeset and headliner machines, doing layout and paste-up, making plates from stripped-up negatives or direct images, developing plates, running the press, and collating the printed material. "Everything" also means maintaining and repairing the machinery in the shop.

Margie: Wow! You mean everyone here can do all that? Do you think I can do all that?

Frank: Yes, everyone here can do all that. And you will too, once you've complet your apprenticeship. Learning here is an on-going process.

Margie: What will I be doing here?

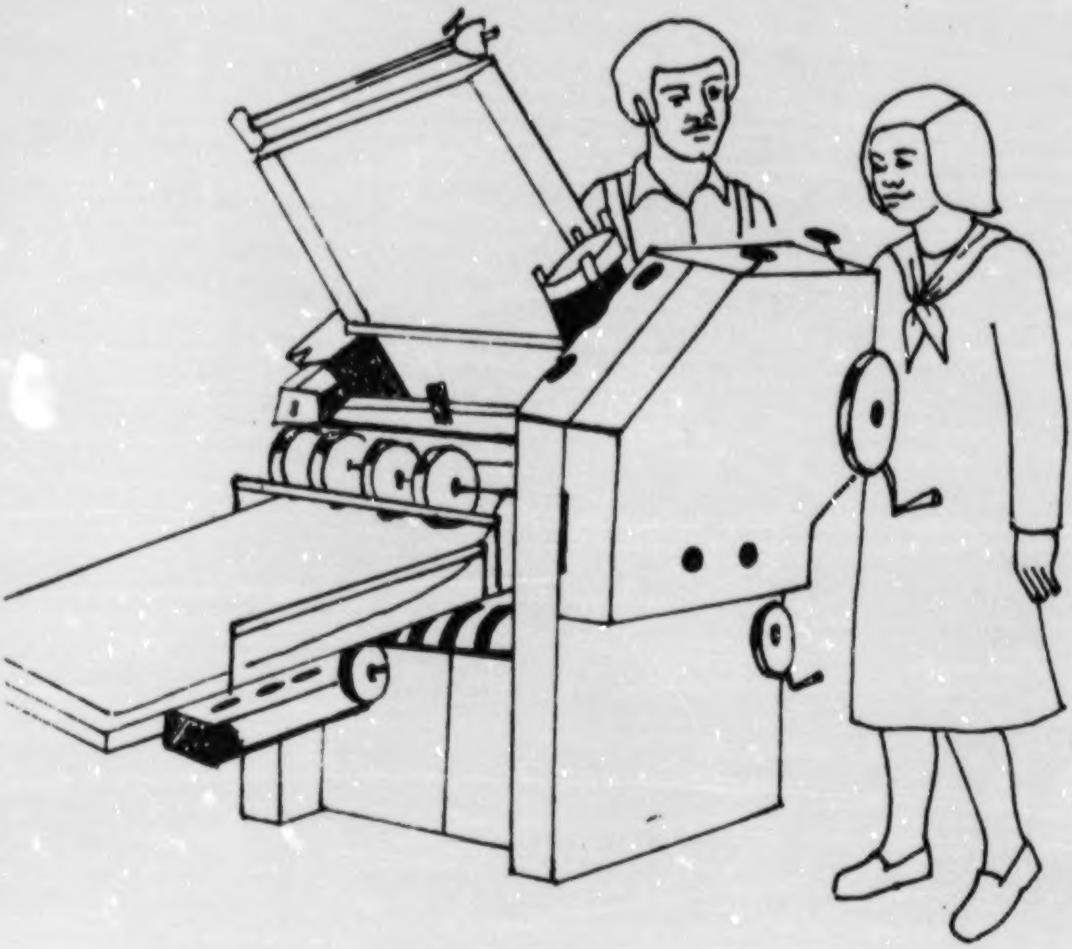
Frank: Well, we'll start you as a press operator. You'll probably work with the press for about four to six months.

Margie: That sounds a little better. I thought you'd teach me everything all at once.

Frank: No, one thing at a time. There's plenty of time and room for advancement in this business. We start you at a beginner's position. As you become confident and skilled, you'll move on to more complicated tasks. After a three year apprenticeship here, you may be qualified to manage a small print shop yourself. Now, come with me. I'll introduce you to Nellie.

Margie: Nellie?

Frank: Nellie's our offset press.

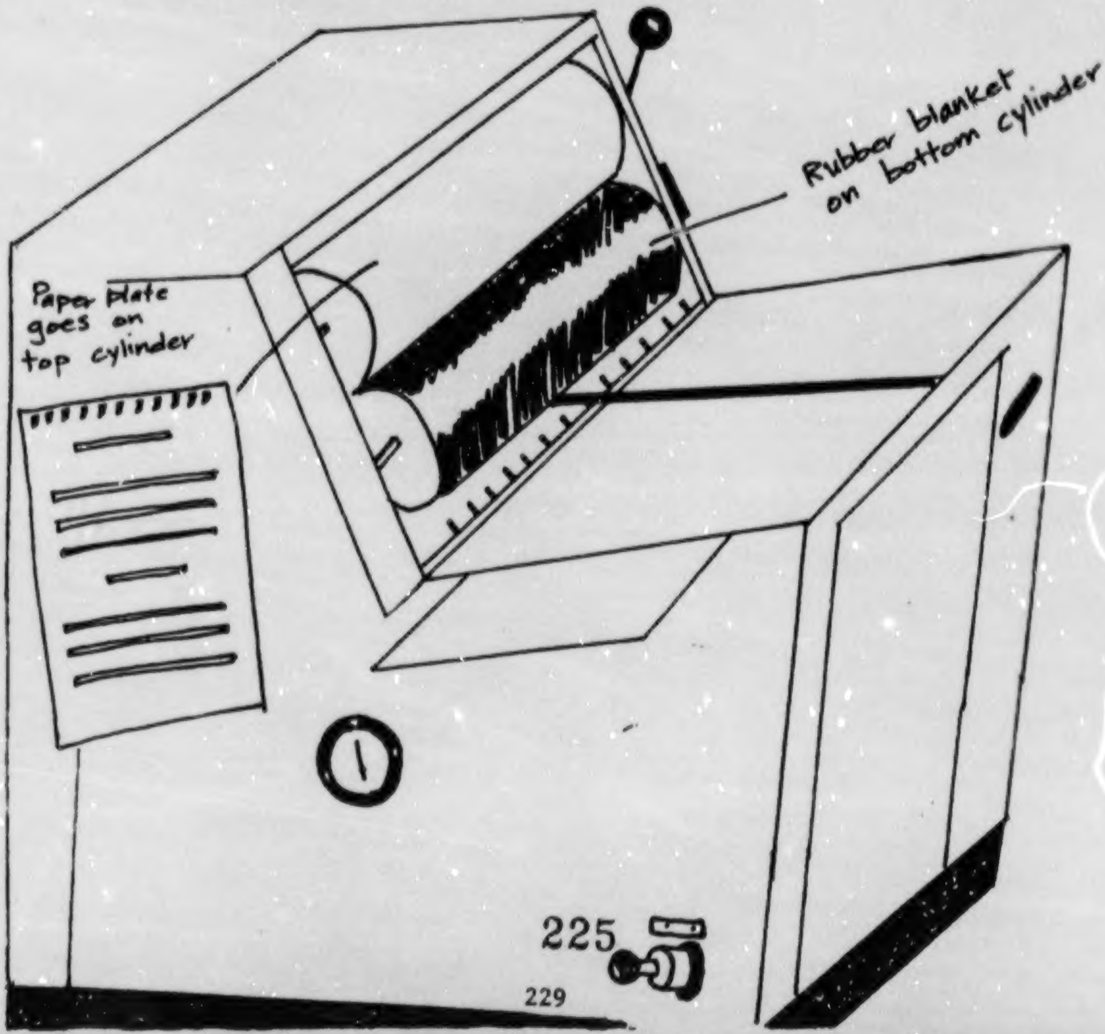


Margie: You said I'll have to maintain and repair Nellie. Does she break down often?

Frank: No. But machines can be temperamental, like people. Unfortunately, working in a print shop means high pressure, with deadlines to meet and customers to please. Machines don't always want to co-operate. They have to be adjusted and cleaned and oiled. The more conscientious you are about maintaining Nellie, the less apt she'll be to break down or foul up on you when you're in the middle of a job.

Margie: What kinds of things can go wrong with her?

Frank: All kinds. I'll explain the whole process to you. Then you'll see what I mean. This is a plate. We use two kinds of plates here: metal plates and paper plates. The plate has the exact image on it that you want on the finished printed copy. The plate is bendable to fit onto the press. After you put the plate on the press, check the ink and the water solution to make sure you have enough of both to do the job. Then run the machine. The image will be transfered from the plate to a rubber blanket on the press. The rubber blanket will transfer the image to the paper. If there is too much ink and not enough water going onto the plate and rubber blanket, the entire blanket will come out black and the copy will come out all black, too. If there is too much water and not enough ink, the ink won't take to the blanket and your copy will come out blank or very blurry. When the amounts are just right, the ink sticks only to the image that gets transfered to the paper.


Rubber blanket on bottom cylinder
Paper plate goes on top cylinder

Margie: I understand. The water and ink don't mix. The water keeps the ink from sticking to the rubber blanket where there are no words or images.

Frank: That's right. Next you're ready for the paper. Paper comes in different weights. The weight of the paper means the thickness. Find out the weight of the paper and how many copies you need to run off. Next adjust the airflow of the press to the paper weight. The airflow pulls the paper through the press. Airflow works like suction. If the flow isn't adjusted to the paper weight, the press will pull more than one sheet of paper through at a time. As the paper gets pulled through the press, it comes in contact with the rubber blanket, which prints the image onto it.

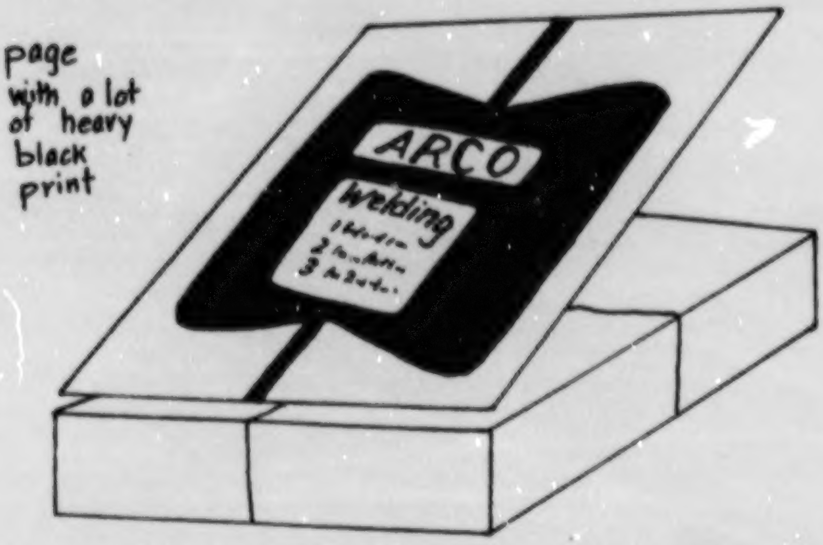
Margie: So most of the adjustments are made before you start to print.

Frank: Right, but as you run the press, you may find that suddenly your image is getting blurry or the machine is taking more than one piece of paper at a time. Then you shut down the machine and check the airflow or ink fountain or water solution. Another thing I should mention is the weather.

Margie: The weather? What's that got to do with printing?

Frank: A lot. The thickness of the ink, and the oil that lubricates the machine are both affected by the temperature and humidity. Generally speaking, the oil and the ink have to be thinned a little when it's cold outside. On a hot day you have the opposite problem: everything gets a little too thin. I'll explain how to fix these problems when they come up. Now, I'll take care of any mechanical problems that require tools, until you really understand how this machine works. We keep all the tools together at the work bench. That way everyone in the shop can use them, and everyone knows where they are.

PRINTING
INK


page with a lot of heavy black print
ARCO
welding

Margie: How long does it take for the ink on the printed paper to dry?

Frank: That's a good question. It depends on how much ink goes onto the page. With a page that has a lot of bold print or large inked-in areas, the ink takes a while to dry. In fact, sometimes as the pages get printed, you have to feed a blank sheet of paper between each page so that the pages don't smear one another. Once a page gets smeared, it's worthless.

Margie: So the ink is permanent?

Frank: Right. It's permanent on paper and very difficult to get out of clothing. That brings me to another point.

Margie: What's that?

Frank: Don't wear your good clothes here. There aren't many hazards to this job, but ruining clothes is one. Do wear comfortable shoes, because you'll be standing on your feet most of the day. All of our machines have safety devices on them to cut down on accidents that could happen. But it's best to be alert at all times so that accidents won't happen. In some big printing agencies, the noise from the machines is so great that the workers must wear plugs in their ears. But in a small shop like this one, you won't find that a problem. The advantages to this job are greater than the disadvantages. You're learning a skill. And since printing is still very much a growing business, you can get a job in most any city or town in the country. There's plenty of room for advancement in this field, and the pay is good. Once you've finished your apprenticeship, you'll go on union wages. The union pay starts at about six dollars an hour, and it goes up from there. But for me the biggest advantage to the job is that in a small shop like this, you get experience working on every aspect of a project from start to finish. It's rewarding.

Margie: I like that idea, myself. It's easier for me to take pride in my work when I know I've taken part in every step along the way. So, once the pages are printed, what happens next?

Frank: That's right! I still have to explain to you about the maintenance of these machines. We use a blanket wash to clean Nellie. You must always clean the machine when you change colors. If you always use the same color ink, the machine needs to be cleaned every three days. You see, the ink gets a little gunky and gummy after a while. Then it can start to build up. Cleaning the machine is one of the most important maintenance steps. Other important steps are: oiling the machine regularly and changing the rubber blanket about every three months. Sometimes it needs to be changed more often. All these things contribute to quality work. If the work we produce is of high quality, then our customers come back. That's what keeps us in business.

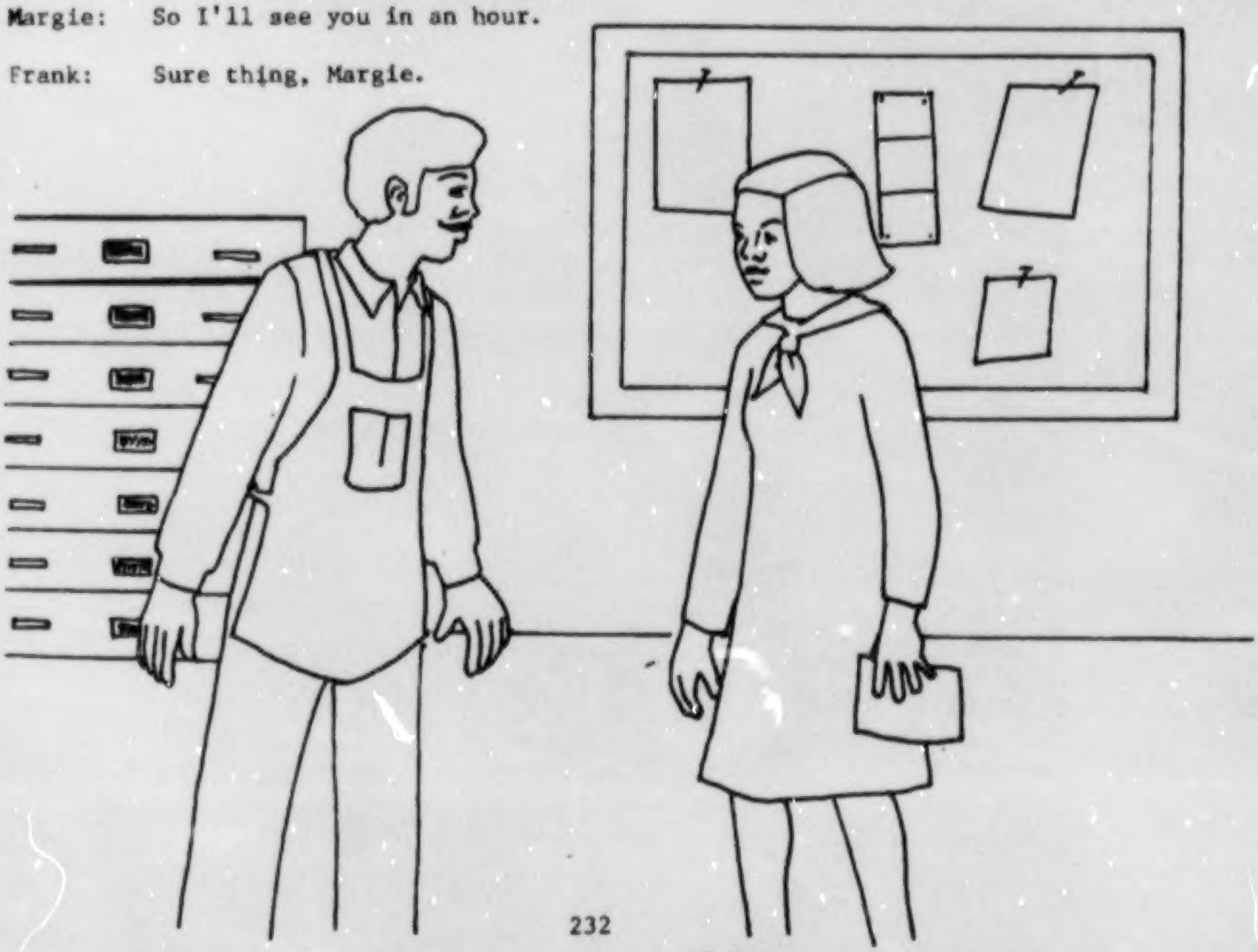
Well, Margie, I think I'm going to let you go for lunch now. When you come back, I'll show you how to oil the machine, and then you can see old Nellie in action.

Margie: Thanks, Mr. Reynolds. What will my hours be here at the print shop?

Frank: Eight to four-thirty, with an hour off for lunch. Once in a while you may have to work overtime. But that only happens when there's a big job that has to be finished.

Margie: So I'll see you in an hour.

Frank: Sure thing, Margie.



OFFSET PRESS OPERATOR:
QUIZ YOURSELF

Name 3 skills and tasks that an offset press operator would perform at work in a small shop.

1.____

2.____

3.____

How is working at a small print shop different from working at a large printing agency?

____

Name 4 pieces of equipment or parts of an offset press which a press operator must be able to use.

1.____________________ 2.____________________

3.____________________ 4.____________________

Name 3 of an offset press operator's maintenance tasks.

1.____

2.____

3.____

Describe 2 ways of getting the training needed to become an offset press operator.

1.____

2.____

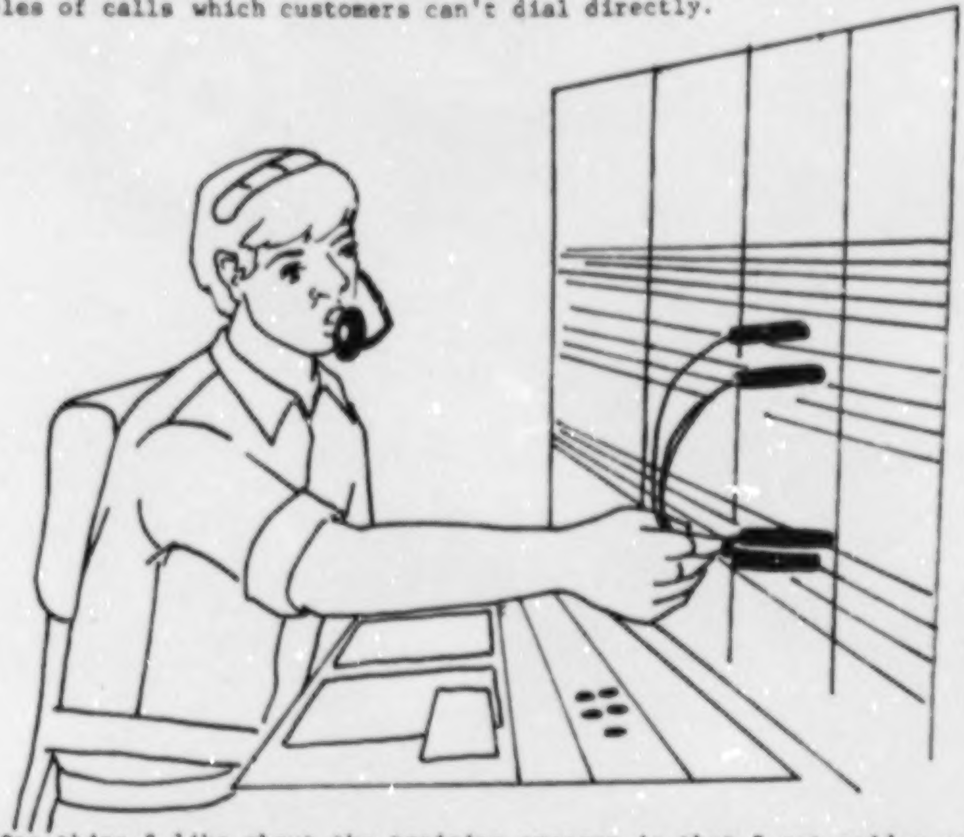
Name one advancement possibility for someone who has completed an apprenticeship at a small print shop.

____

Leroy Ames, Telephone Trainee

My name is Leroy Ames. Last month I graduated from high school and next week, I'll finish my three-week telephone operator training program. That means I can start working here at the Concord Telephone Company full-time. As a trainee, I learn by reading training books and then I test myself to see how much I've learned. I also use a model "toll cord board" to practice what I've learned from reading.

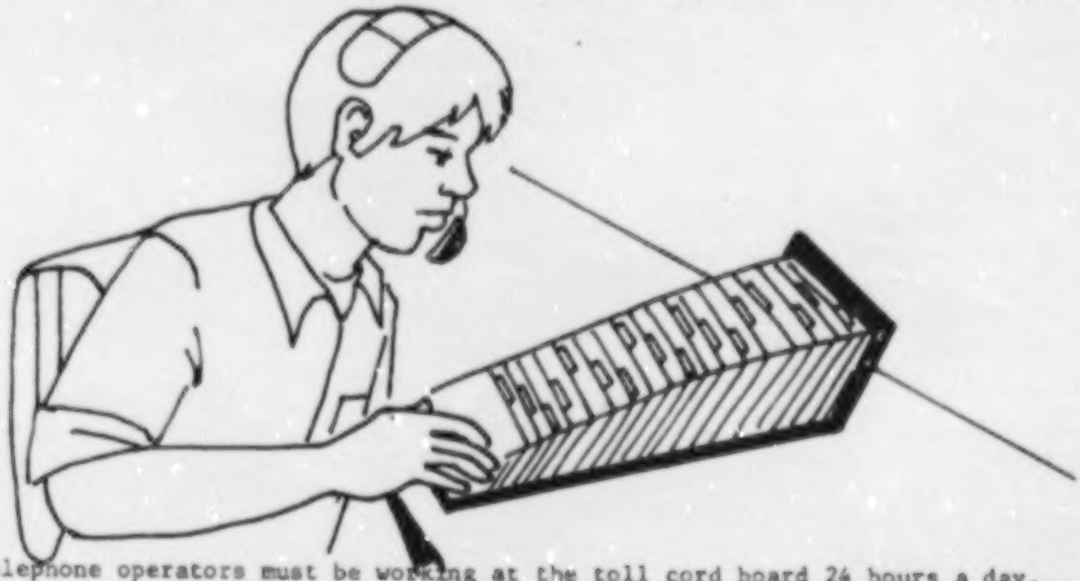
At the toll cord board, I practice helping customers who don't know how to dial, or who need help in emergencies. I also practice helping customers to complete long distance calls they can't dial direct. "Person-to-person," "reverse charge," "credit card," and "pay phone" calls are examples of calls which customers can't dial directly.



One thing I like about the training program is that I get paid a salary while I'm learning. Another thing I like about my training is that I can learn at my own pace. I don't have to wait for other trainees to catch up before I can practice on the toll cord board or start reading the next training book. Besides that, service assistants are always around to help out. They explain things to the trainees, and help us out by playing the part of the customers when we practice on the toll cord board. After listening to me practice, a service assistant can suggest ways to improve. After I complete my training, service assistants will continue to suggest ways I can improve at my work by listening in on calls I take. Also, they'll be on hand to help me with calls when I need it. It's really important for telephone operators to be able to work under close supervision.

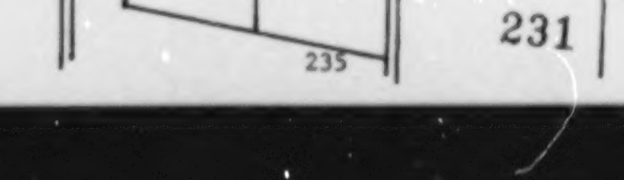
Some skills needed by telephone operators are speaking clearly, being courteous, alert, fast at their work, on time, and regular in attendance. Right now I'm learning how to record information about every call I take by marking the right spaces on computer cards. Customer billing and company records are handled by a computer, so I'm really careful to mark the card without a mistake. Accuracy is another very important skill for telephone operators.

Telephone operators don't have to memorize how much to charge for every call they process. But they must know how to read the Bulletins, which list the rates or costs of all kinds of telephone calls. Bulletins also give operators directions for sending telephone calls to their destinations. Getting to know the codes and symbols used in Bulletins is part of my training.



Telephone operators must be working at the toll cord board 24 hours a day, every day of the year. So operators don't usually work a 9-5, five-days-a-week schedule. Every operator's work schedule varies, so that everybody works a late night or early morning shift now and then. I like that idea, myself. Operators also get periodic rest breaks at work and get paid at the rate of double-time-and-a-half when they work on holidays like Christmas and Thanksgiving. And part-time work is available for telephone operators, too.

As a telephone operator, I'll be doing all my work seated at the toll cord board in a clean, well-lighted room. In a few years, the toll cord board will be replaced by a "console," which will automatically figure out and record charges for calls and automatically route them.



It'll take fewer operators to handle more calls when the console is used. Telephone operators won't have to be out of jobs, though. They can advance to other positions in the Concord Telephone Company, using the Upgraded Transfer System.

I can plan to use the Upgraded Transfer System now. It works like this: after I've been working as a telephone operator for six months, I can apply for other positions in the company. When there's a vacancy, I'll be interviewed for the position. If I'm qualified, I'll get the job.

If I need to get more training to become qualified for a job in the company, I can use the company's Tuition Plan. The company will help me pay for "business-related" training that will help me advance to other positions. Typing, accounting, psychology, and English are just a few of the many courses the Concord Telephone Company considers "business related."

Although telephone company employees do the same type of work day after day, and must always work according to strict instructions, there are plenty of advantages for telephone company employees. Paid holidays, vacations, health plans, retirement and disability plans, savings plans, and sick leave are some of them. What I like best about working for the telephone company though, is being encouraged to advance in my career. That's what training to become a telephone operator is all about for me. Last month I graduated from high school, next week I'll be a full-time telephone operator, and next year--I'll be on my way to career advancement!

CAREER ADVANCEMENT
Upgraded Transfer System
HOLIDAYS

TELEPHONE OPERATOR:

TEST YOURSELF

Name 4 skills and/or tasks of a telephone operator.

1. ______________________ 2. ______________________

3. ______________________ 4. ______________________

Name 3 tools or pieces of equipment used by telephone operators. How is each used?

TOOLS	USES
1. ______________________	1. ______________________
2. ______________________	2. ______________________
3. ______________________	3. ______________________

How does a telephone operator use reading skills on the job?

____

Describe a telephone operator's schedule and work conditions.

____

____

____

Describe the training needed to become a telephone operator.

____

____

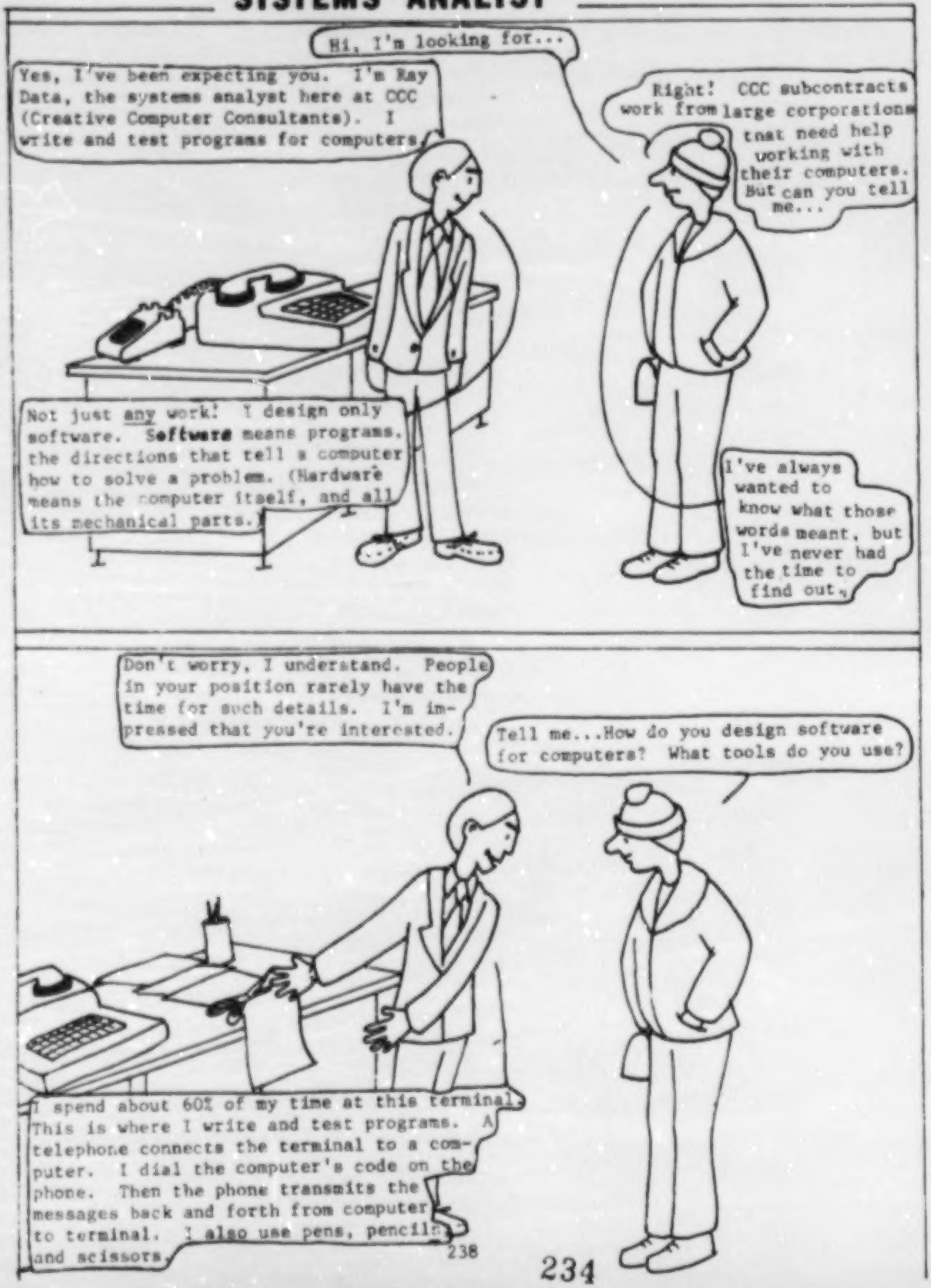
____

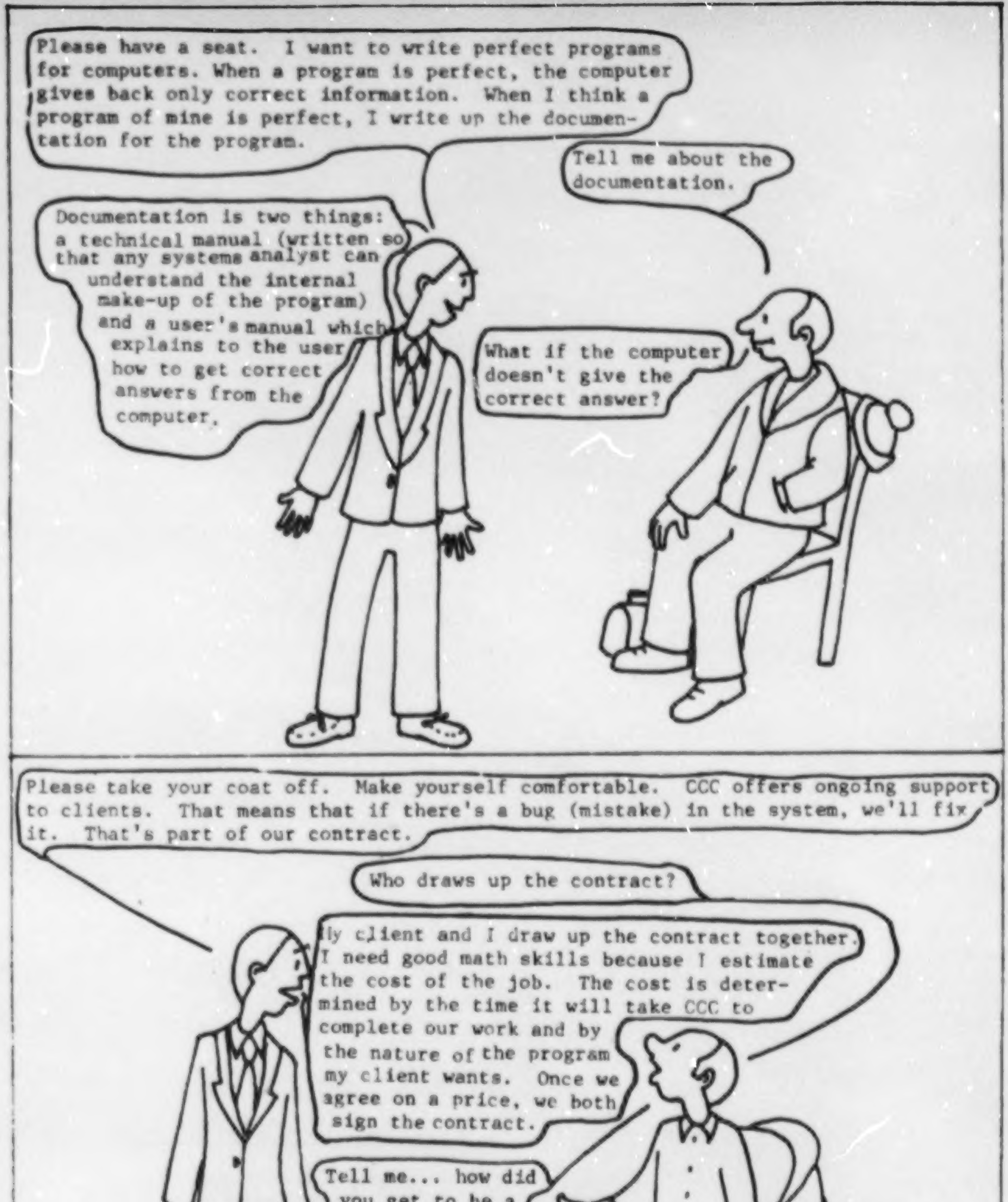
How can a telephone operator advance to a higher paying position?

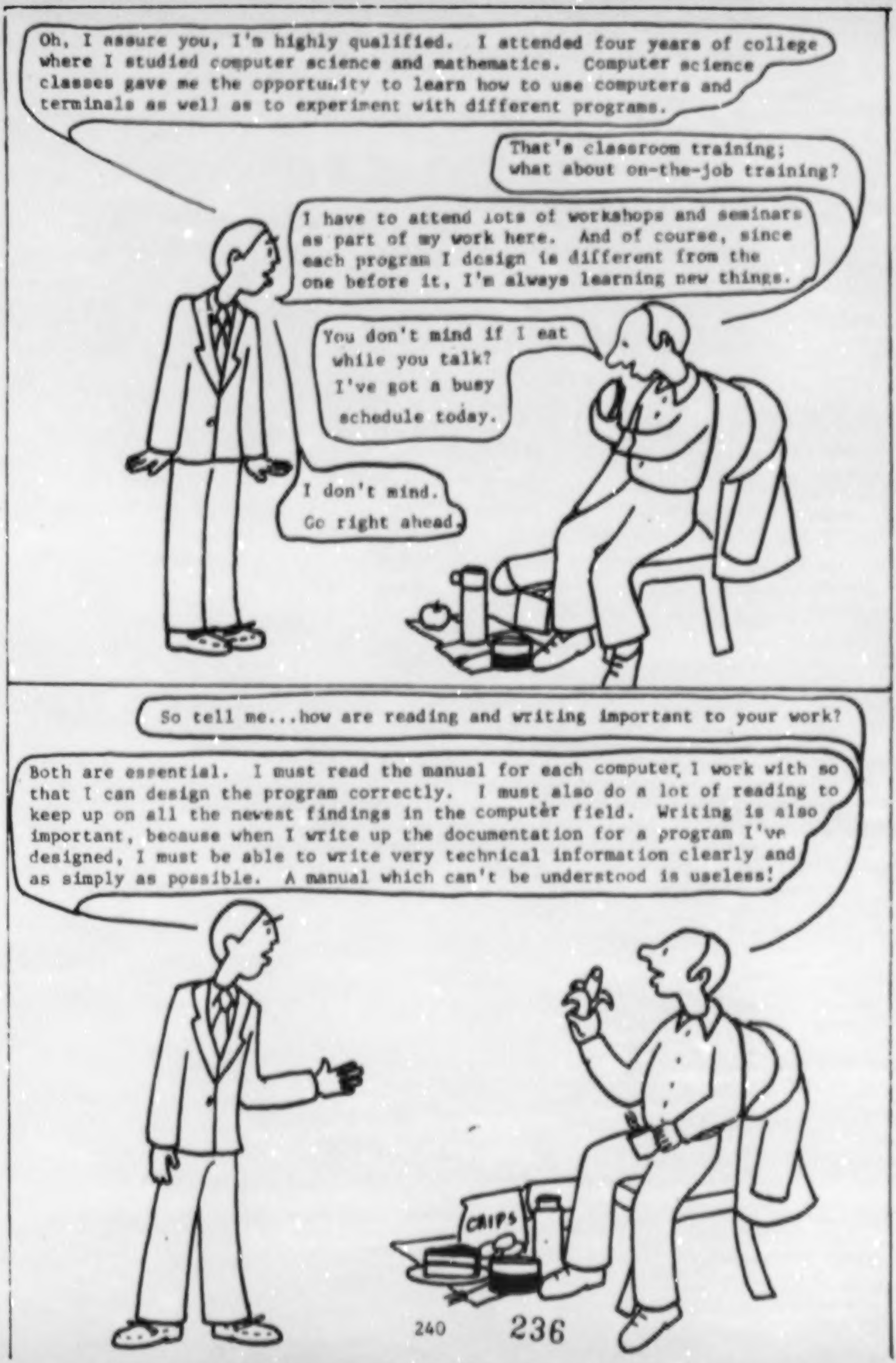
____

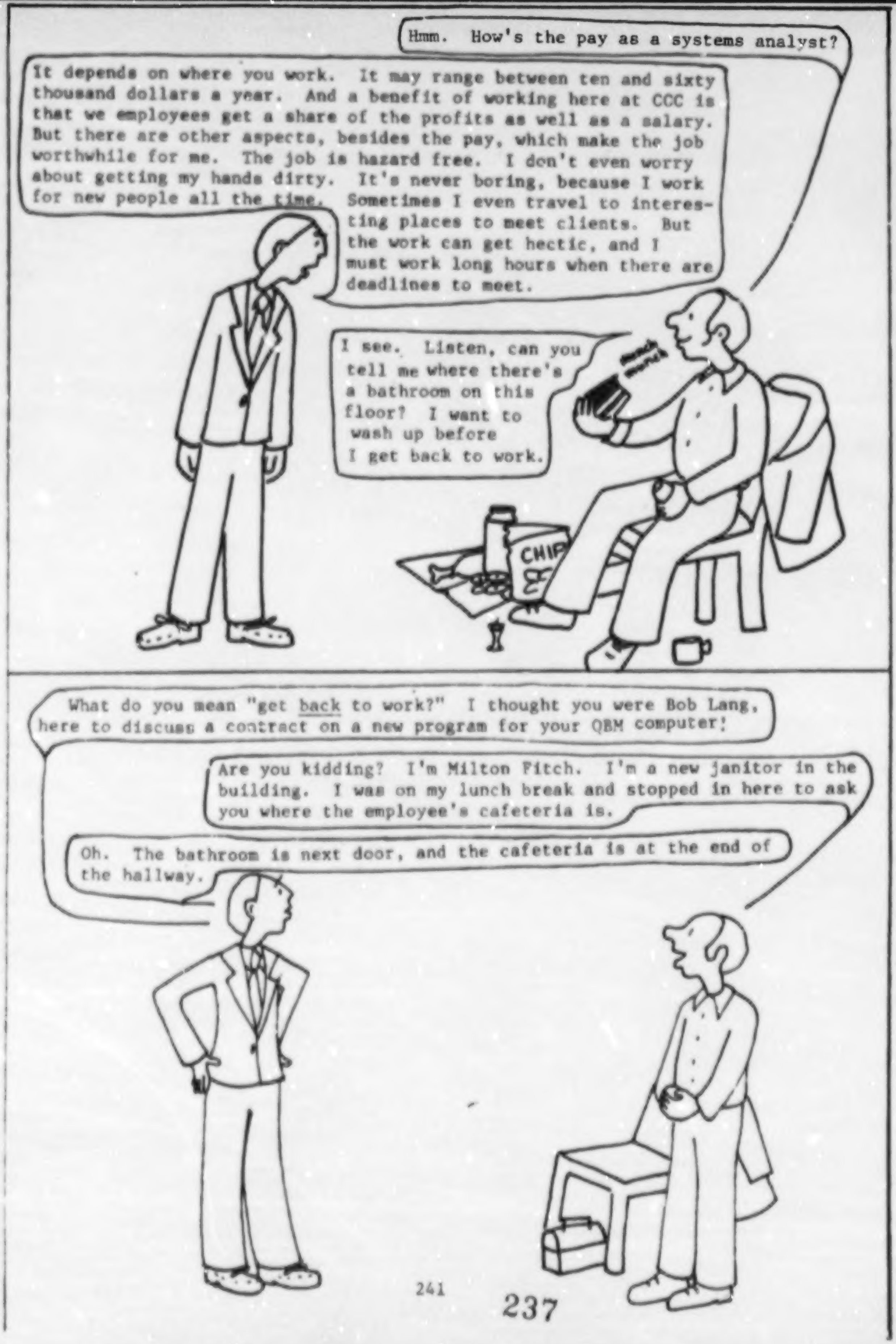
____

COMPUTER SYSTEMS ANALYST


Hi, I'm looking for...
Yes, I've been expecting you. I'm Ray Data, the systems analyst here at CCC (Creative Computer Consultants). I write and test programs for computers.
Right! CCC subcontracts work from large corporations that need help working with their computers. But can you tell me...
Not just any work! I design only software. Software means programs, the directions that tell a computer how to solve a problem. (Hardware means the computer itself, and all its mechanical parts.)
I've always wanted to know what those words meant, but I've never had the time to find out.
Don't worry, I understand. People in your position rarely have the time for such details. I'm impressed that you're interested.
Tell me...How do you design software for computers? What tools do you use?
I spend about 60% of my time at this terminal. This is where I write and test programs. A telephone connects the terminal to a computer. I dial the computer's code on the phone. Then the phone transmits the messages back and forth from computer to terminal. I also use pens, pencils and scissors.


Please have a seat. I want to write perfect programs for computers. When a program is perfect, the computer gives back only correct information. When I think a program of mine is perfect, I write up the documentation for the program.
Tell me about the documentation.
Documentation is two things: a technical manual (written so that any systems analyst can understand the internal make-up of the program) and a user's manual which explains to the user how to get correct answers from the computer.
What if the computer doesn't give the correct answer?
Please take your coat off. Make yourself comfortable. CCC offers ongoing support to clients. That means that if there's a bug (mistake) in the system, we'll fix it. That's part of our contract.
Who draws up the contract?
My client and I draw up the contract together. I need good math skills because I estimate the cost of the job. The cost is determined by the time it will take CCC to complete our work and by the nature of the program my client wants. Once we agree on a price, we both sign the contract.
Tell me... how did you get to be a systems analyst?


Oh, I assure you, I'm highly qualified. I attended four years of college where I studied computer science and mathematics. Computer science classes gave me the opportunity to learn how to use computers and terminals as well as to experiment with different programs.
That's classroom training; what about on-the-job training?
I have to attend lots of workshops and seminars as part of my work here. And of course, since each program I design is different from the one before it, I'm always learning new things.
You don't mind if I eat while you talk? I've got a busy schedule today.
I don't mind. Go right ahead.
So tell me...how are reading and writing important to your work?
Both are essential. I must read the manual for each computer I work with so that I can design the program correctly. I must also do a lot of reading to keep up on all the newest findings in the computer field. Writing is also important, because when I write up the documentation for a program I've designed, I must be able to write very technical information clearly and as simply as possible. A manual which can't be understood is useless!
CHIPS


Hmm. How's the pay as a systems analyst?
It depends on where you work. It may range between ten and sixty thousand dollars a year. And a benefit of working here at CCC is that we employees get a share of the profits as well as a salary. But there are other aspects, besides the pay, which make the job worthwhile for me. The job is hazard free. I don't even worry about getting my hands dirty. It's never boring, because I work for new people all the time. Sometimes I even travel to interesting places to meet clients. But the work can get hectic, and I must work long hours when there are deadlines to meet.
munch munch
I see. Listen, can you tell me where there's a bathroom on this floor? I want to wash up before I get back to work.
CHIP
What do you mean "get back to work?" I thought you were Bob Lang, here to discuss a contract on a new program for your QBM computer!
Are you kidding? I'm Milton Fitch. I'm a new janitor in the building. I was on my lunch break and stopped in here to ask you where the employee's cafeteria is.
Oh. The bathroom is next door, and the cafeteria is at the end of the hallway.

SYSTEMS ANALYST

HOW MUCH DO YOU REMEMBER?

1) Ray Data designs computer software. What is software? What is hardware?

software: ____________________

hardware: ____________________

2) Besides pens, pencils, and scissors, what are Ray's two most important tools or pieces of equipment?

____________________ ____________________

3) Describe a systems analyst's work place.

____

4) How does Ray use math, reading, and writing skills on the job?

math: ____________________

reading: ____________________

writing: ____________________

5). What kind of training prepared Ray for his work as a systems analyst?

school: ____________________

on-the-job: ____________________

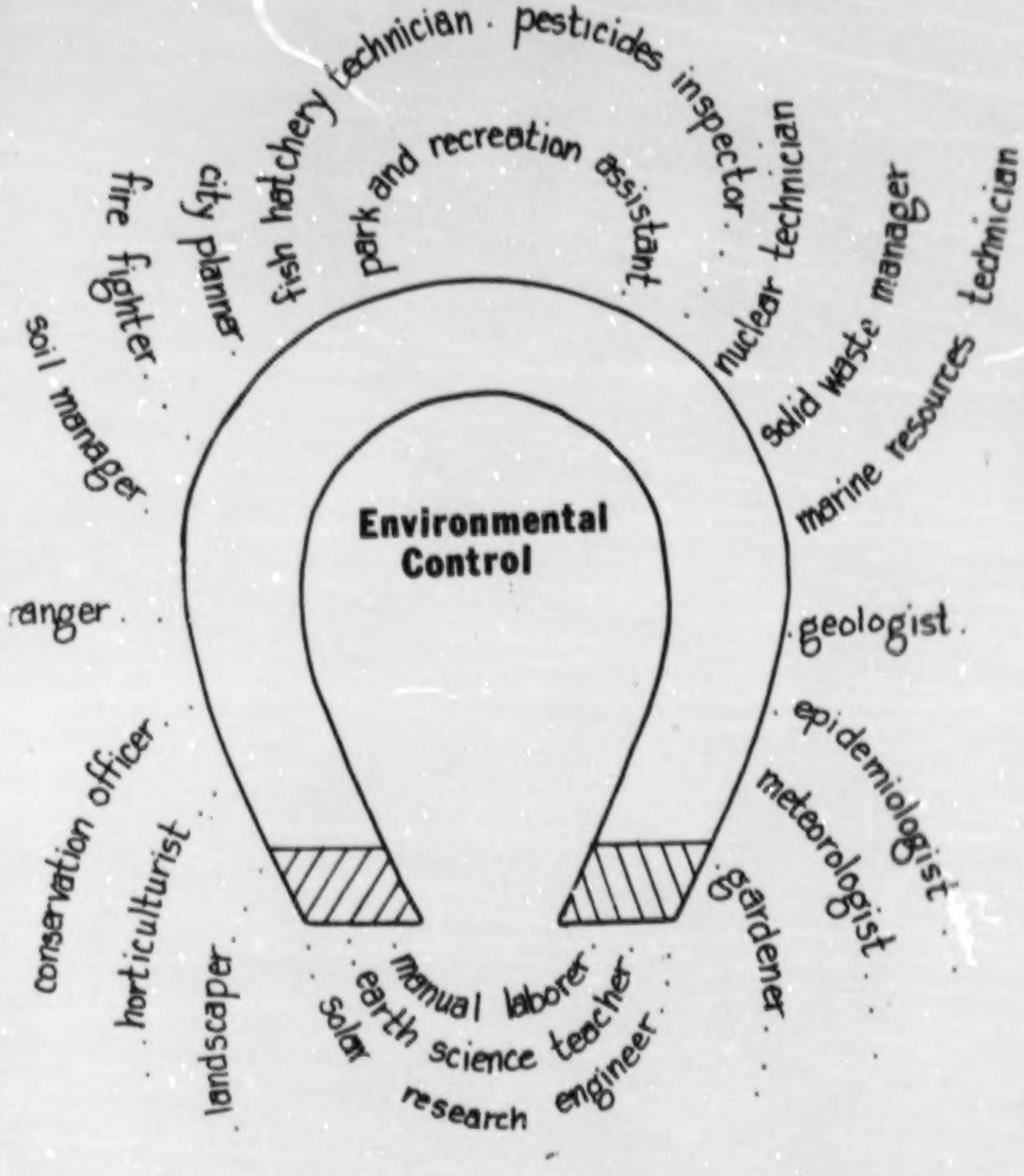
6) Name one advantage and one disadvantage to Ray's work.

advantage: ____________________

disadvantage: ____________________

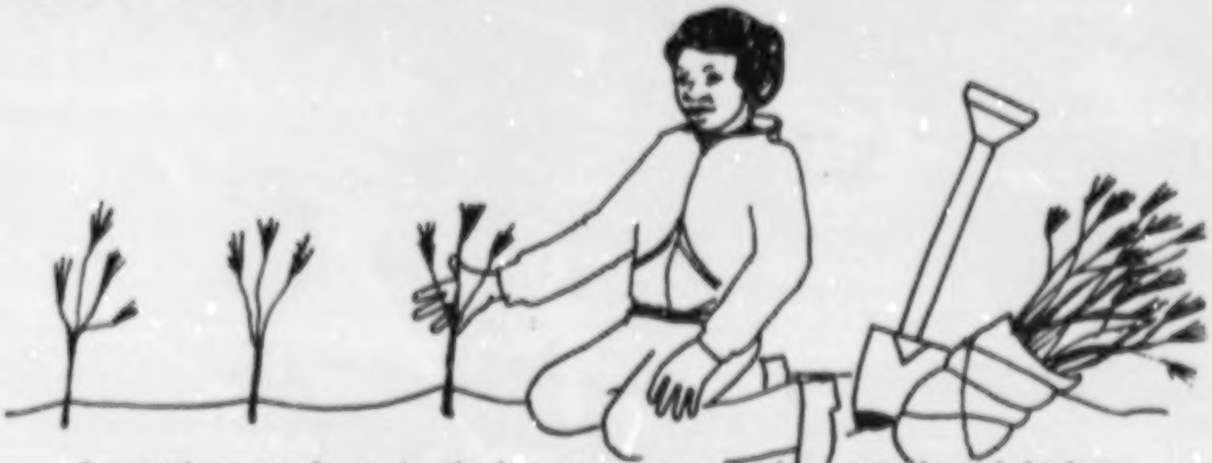
7) Systems analysts can make lots of money, depending on where they work. What's the range of salaries which can be earned by systems analysts?

From $____________ to $____________.


Environmental Control
fish hatchery technician
pesticides inspector
park and recreation assistant
city planner
fire fighter
nuclear technician
solid waste manager
marine resources technician
soil manager
ranger
geologist
conservation officer
epidemiologist
meteorologist
horticulturist
landscaper
gardener
manual laborer
earth science teacher
solar research engineer

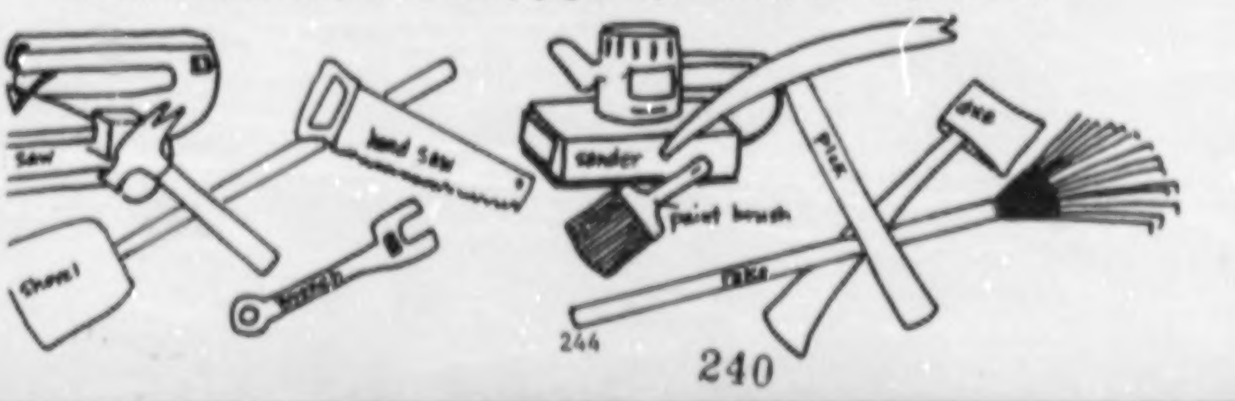
MICKI LANE: ENVIRONMENTAL CONSERVATION LABORER

Hi there. My name is Micki Lane. I'm a laborer at the regional office of the Department of Environmental Conservation. I like the outdoors and, luckily, that's where I work most of the time. I have to be prepared to work in all kinds of weather. I am employed as a seasonal worker, which is a little different than a permanent worker. As a seasonal, I get switched around to different work places at different times of the year, depending on what work needs to be done. If I became a permanent worker, I'd be in one place all the time or doing just one type of work. As you may have guessed, I like doing different things at work. I get bored doing just one thing over and over. So this type of work suits me fine.

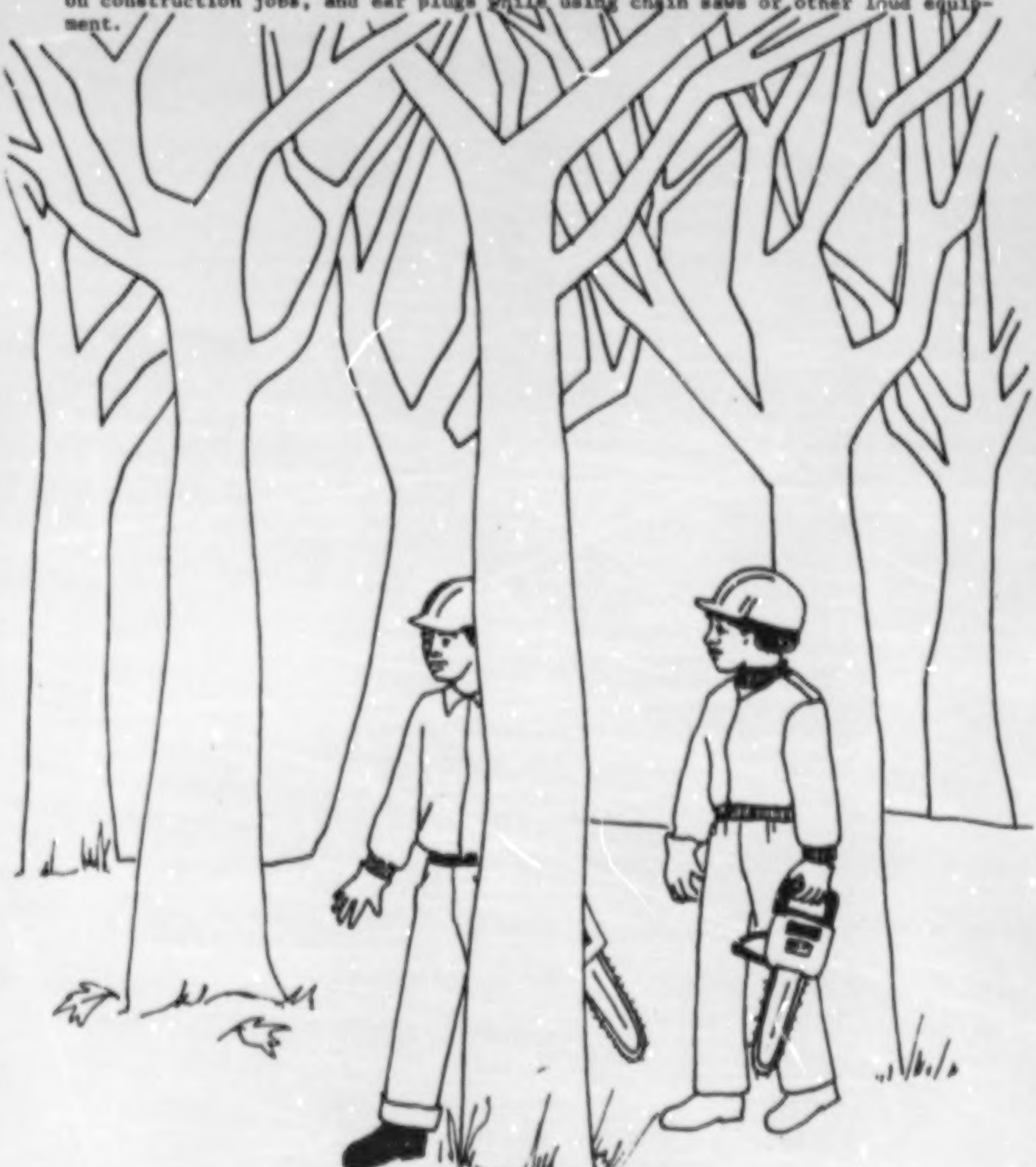


I sometimes mow lawns in the hot summer sun or clean out clogged drainage ditches in the pouring rain. Once I had to help fight a forest fire up on the mountain. In the winter I plow snow from the roadways here at the regional office. I've moved and repaired office furniture. And I've cleared brush and cut trees around fences and on forest roads and trails. My work is so varied, that I have to be prepared to do almost anything. My background is in plumbing repairs. I took the BOCES training course in plumbing during high school and whenever any plumbing repairs are needed, I do them.

Take a look at all of the tools here. I'm proud to say that I have a good working knowledge of each of these hand tools and small power tools. I use them on the job all the time. The regional office of the Department of Environmental Conservation supplies these tools when I need them. Some of the hand tools I use are hammers, saws, screw drivers, paint brushes, wrenches, shovels, picks, axes, rakes, hoes, hand trucks, and many more. Some of the small power tools I use are lawn mowers, chain saws, jig saws, sanders, and many others.



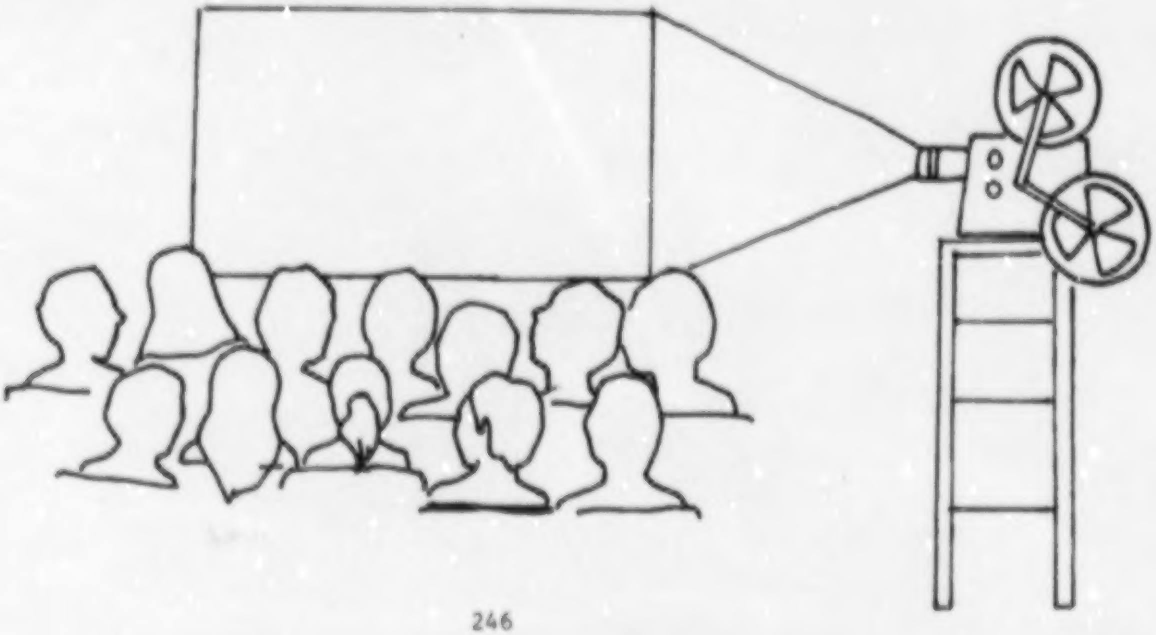
The working hazards include the danger of falling trees, or injured ears. Safety regulations here require that all laborers wear hard hats while working on construction jobs, and ear plugs while using chain saws or other loud equipment.



Now when I was in high school, I didn't like the reading we had to do--novels, poems, essays, and things like that. But now I'm glad I stuck it out. Reading is very important at this job. I have to read directions so that I know how to put things together. I also have to read work orders to know where I'll be working and what my tasks will be. Math is important sometimes, too. I need to figure out how many hours I've worked each week in order to fill out my time card. Besides simple addition, I have to figure out ratios when I fill the chain saw with a gas and oil mixture. I also have to get along with people. It's important that I can answer any questions they might ask me when I'm out in the field, because I'm a representative of the Department of Environmental Conservation. And the most important skill I use is common sense. Common sense helps me figure out how to do things that I've never had experience with before.

This region includes seven counties. That's a pretty large area to cover. So I sometimes have to travel quite a distance to do my job. The average work day is from 8:30 AM to 5 PM with a half-hour for lunch. Once in a while I might have to work longer. Then I get paid the overtime rate. But that's pretty unusual. When I started out here I worked for the minimum wage. After only a few months, my bosses saw that I could work well, so I was given a raise. Now I can look forward to raises usually on a yearly basis.

Right now I'm taking a special class to learn to drive large trucks. When I pass the test, I'll be able to drive the big trucks used by the Conservation Department. The Department of Environmental Conservation encourages all employees to keep going back to school. The more skills we learn, the better it is for us. These skills can lead to getting a higher paid position here or at any of the other regional offices. This is a real advantage to working here. And there are lots of chances for advancement. From laborer, I can advance to a maintenance assistant, equipment operator/truck driver, or to operations or field supervisor. Each of these jobs requires more skill and experience than mine does. I'm working to advance, and I feel like I've got a real exciting future.



ENVIRONMENTAL CONSERVATION LABORER

QUIZ

Micki's work tasks are varied. Name three of these tasks in the spaces below.

1. ____________________

2. ____________________

3. ____________________

Name two hand tools and two power tools that Micki uses on the job.

Hand tools: 1. ____________ 2. ____________

Power tools: 1. ____________ 2. ____________

As a seasonal worker, Micki works at several different work places throughout the year. Describe three of these work places in the spaces below.

1. ________ 2. ________ 3. ________

Describe how an environmental conservation laborer uses math and reading skills on the job.

math: ____________________

reading: ____________________

What kind of training helped Micki to prepare for her job?

____

Name one on-the-job hazard and one advantage of Micki's type of work.

hazard: ____________________

advantage: ____________________

Name some possibilities of advancement for environmental conservation laborers.

____

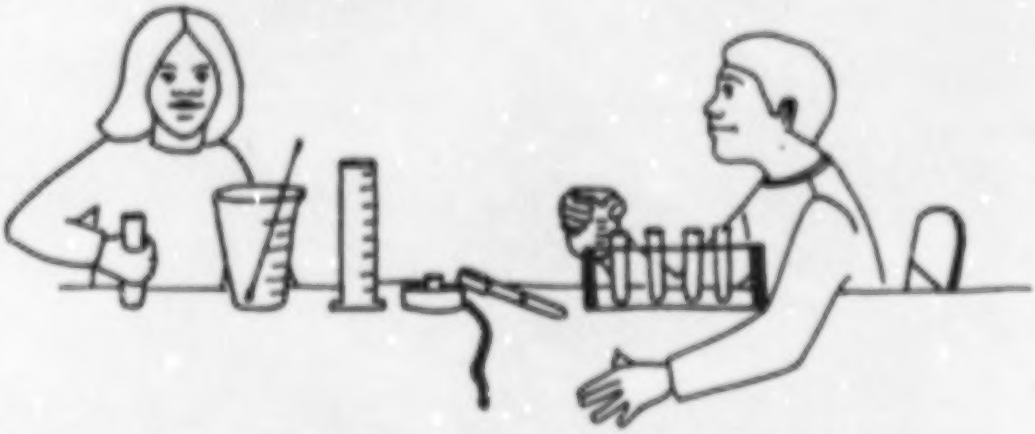
____

EARTH SCIENCE TEACHER

I teach earth science to five groups of students a day,
And the reward of seeing students learn is as important to me as the pay.
I help students learn about the structure of this earth,
Its place in the universe, and earth's history since its birth.
I teach respect for this planet's resources, a topic called "conservation,"
And I try to excite kids about the natural beauty abundant across the nation.
Some other topics I teach are "minerals," "astronomy," and "weather."
And since both "seasons" and "time" depend on the earth's movement,
I teach these two topics together.

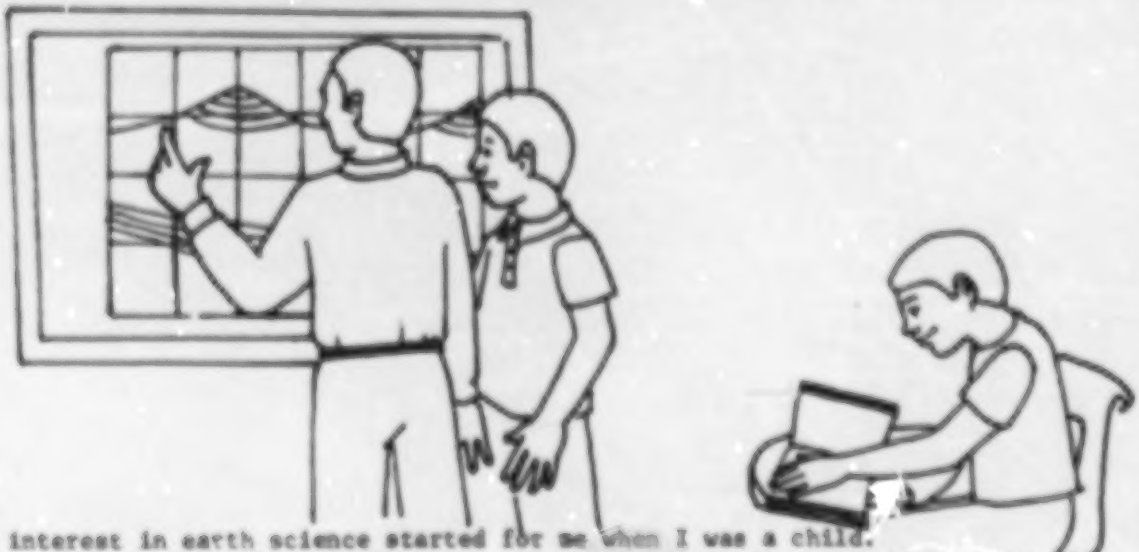
When the school year begins, I plan lessons, and order the materials I'll use:
Films, mineral samples, and models of caves and mountains
Are some of the teaching tools I choose.
I describe each new topic, and I encourage questions, "Please ask."
Helping students understand what I'm teaching is a very important task.
I lecture. I draw diagrams and write words on the board.
And then I check each student's work so that no one is ignored.

I want students to do more than just listen to me, so I do more than just blab.
We go outside for earth and sky observation, and do experiments in the lab.
I introduce new words and ideas before I teach a lab subject.
And I give out supplies so students can practice using
Beakers, thermometers, bunson burners, scales, and other scientific objects.

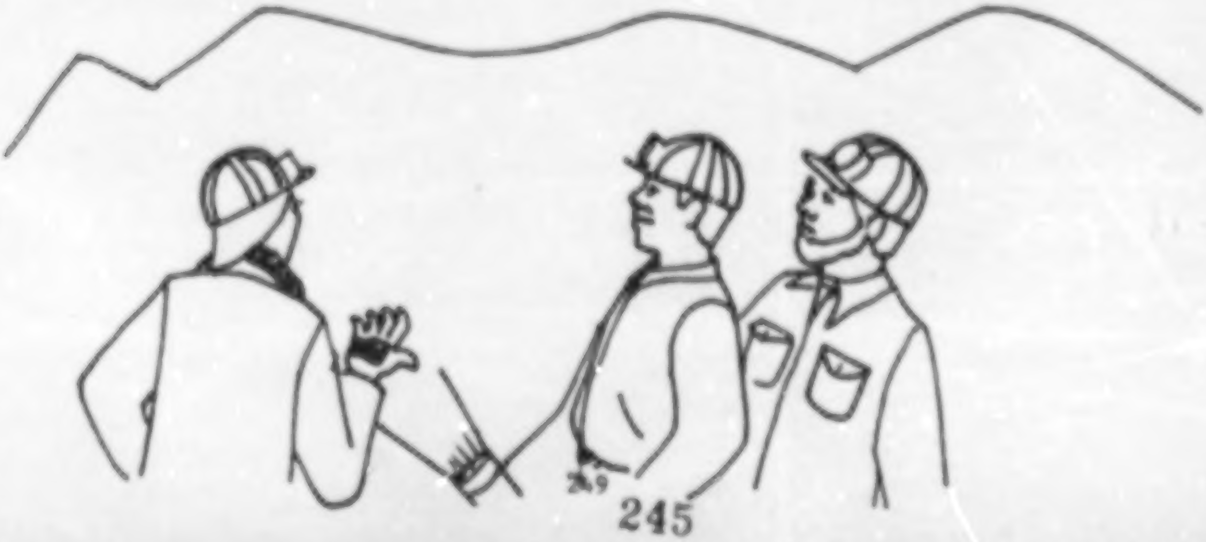


I make up lab experiments and tests, and then I grade them too.
And I put together groups of rocks for sample mineral kits.
I help students with special projects or problems after school.
I enjoy this, but discipline problems sometimes tax my wits.
When a student interrupts the class, acting like a clown,
I try to cool my temper, and calm the whole class down.

Many of my teaching skills are things I learned in school.
I use math for figuring proportions and equations, and I read a lot, as a rule:
Text books, lab instructions, maps and graphs of the sea and land.
My personality skills include patience, and flexibility with my plans.
It's important to be able to explain new ideas one step at a time,
And to know what each student is capable of.
Some kids need lots of special help; others work alone just fine.

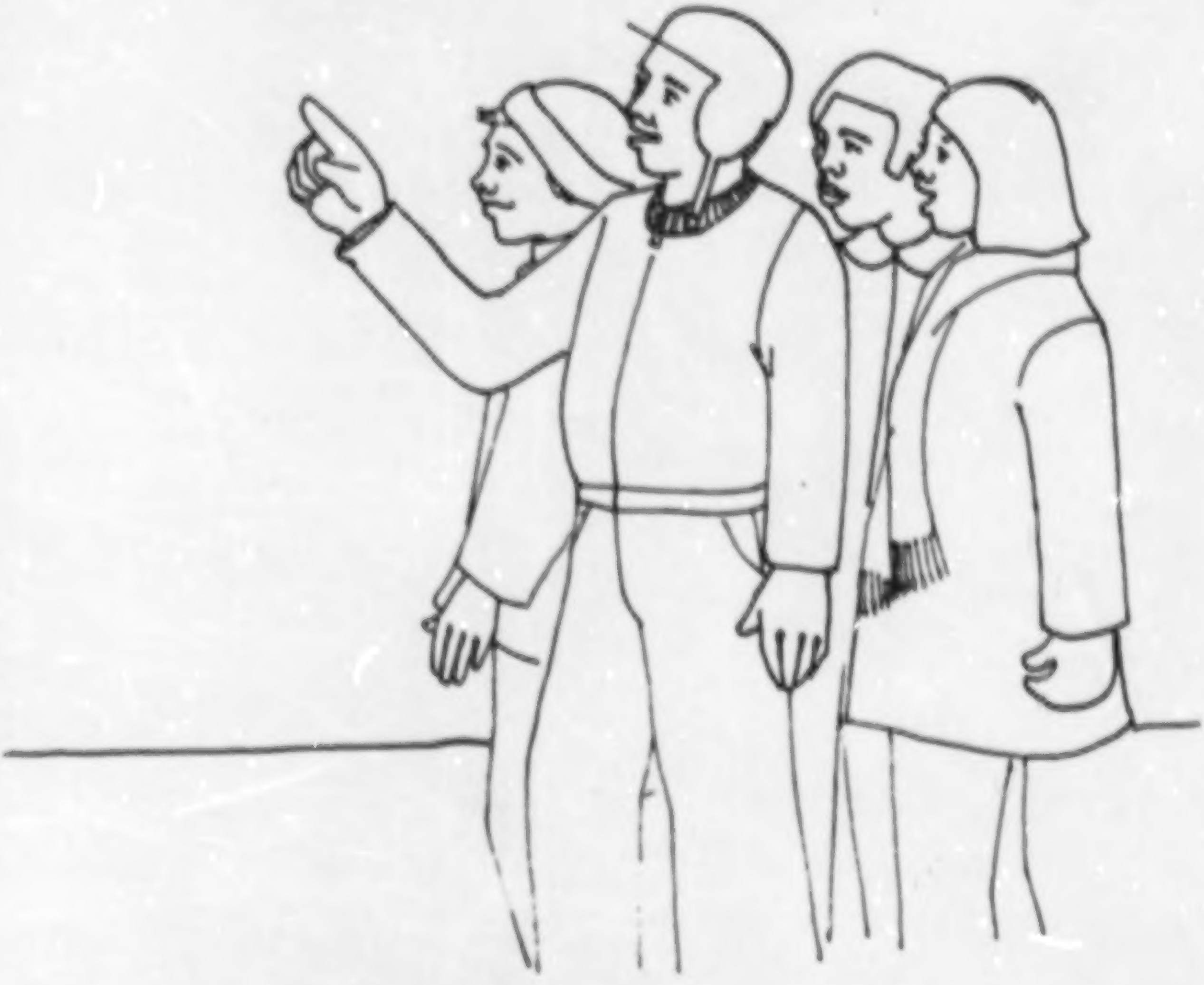


My interest in earth science started for me when I was a child.
I was curious about the world around me, and I loved all things that grew wild.
But before I taught science, I was a mechanical engineer.
Then the fact that I wanted to work with people and the earth became very clear.
Though I had some college training, I'd never gotten a degree,
So I took science and education courses for years at night, you see.
Then, after teaching earth science for a few years, I went for my masters degree.
Even though I've earned my M.S., education's an on-going thing with me.
During the long summer vacation that most teachers earn,
I take science courses in the field, my favorite place to learn.
The courses I take help me teach with enthusiasm.
It's easy to get excited about caves after a summer exploring underground chasms.



I work in the field, in classrooms, and in experimental labs.
Variety at work is one of the things that feels right
About this job of teaching science, which for me is prime.
Besides high school, earth science teachers can teach adult ed. courses at night,
Or with a masters degree, at junior college, part time.
I can't imagine more fulfilling work than teaching, but...
Teaching jobs are hard to find now; school budgets are being cut.

The benefits at this job include hospital and dental insurance plans,
Sick time, and personal time, and chances to advance
To a school which pays better salaries, or is in a better location,
Or, if you're talented in management, maybe a job in administration.
But an advantage to this job which really helps me feel my worth
Is watching students get excited about studying the earth.



EARTH SCIENCE TEACHER:
TEST YOURSELF

What are 3 on-the-job tasks of an earth science teacher?

1.____

2.____

3.____

Name 4 tools or pieces of equipment an earth science teacher might use on the job.

1.____________________ 3.____________________

2.____________________ 4.____________________

What kind of training will prepare someone to teach earth science?

____

Name 3 places where an earth science teacher can be found at work.

1.______________ 2. ______________ 3.______________

How do earth science teachers use reading and math skills on the job?

reading: ____________________ math: ____________________

What other skills are important for success as an earth science teacher?

____

What's one possibility of advancement in the teaching field?

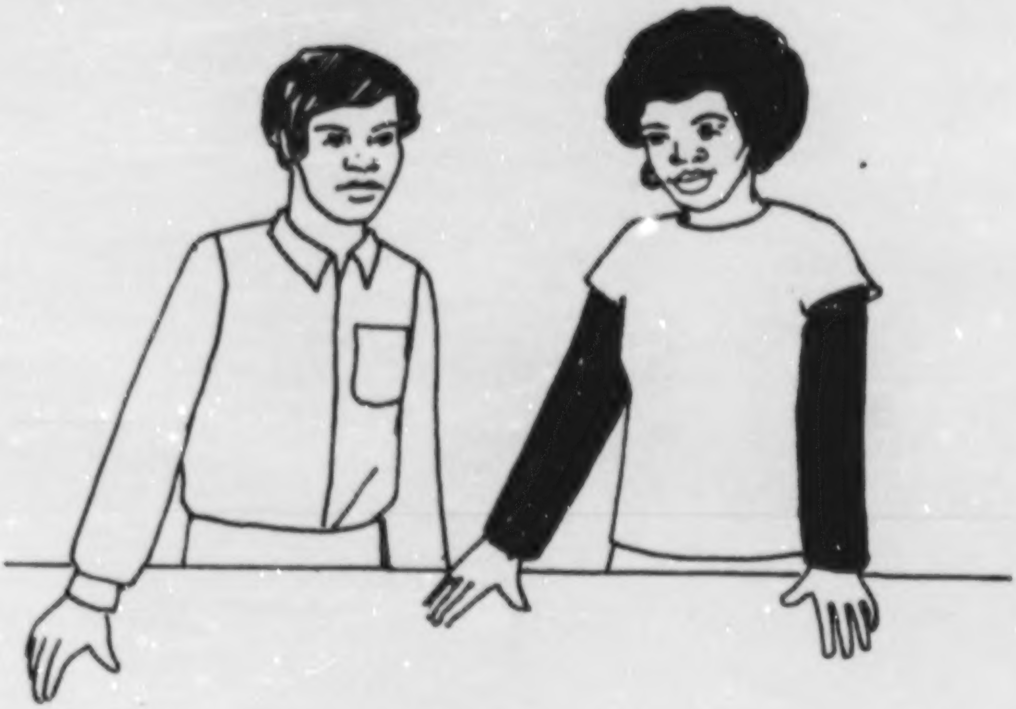
____

Name one benefit and one disadvantage that comes along with working in the teaching field.

benefit: ____

disadvantage:____

JESSICA ELDRIDGE
SOLAR RESEARCH ENGINEER

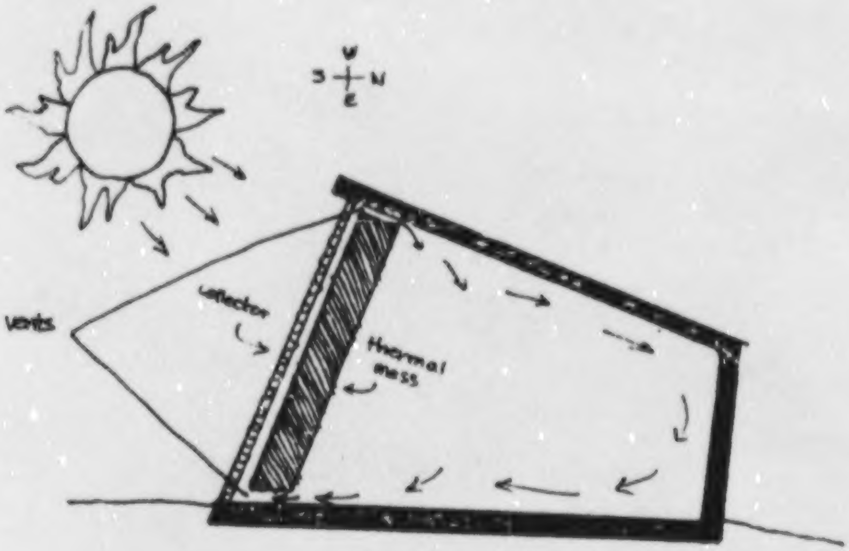


Hal: Hello. I'm Hal Adams, a student in the Work Experience Program at Uptown High School. I have an appointment with Jessica Eldridge, to talk about what I'll be doing as a lab **assistant** here at **Sol-**Products.

Jessica: Hello, Hal. I'm Jessica. I'm a solar research engineer. I'll be your supervisor while you're here at Sol-Products.

Hal: I'm eager to learn about the work done here, especially the work I'll be doing.

Jessica: I sure do like your enthusiasm. Here's a drawing of a simple solar heating system manufactured by Sol-Products. The solar collector collects heat energy from the sun. Then the heat is kept in a storage tank. The heat exchanger circulates the heat from the storage tank to the area to be heated, and then back to the collector. The natural flow of air circulates the heat in this system. Fans or pumps can be used to circulate air or liquid in our more complicated systems.



The thermal mass works as a storage tank.
The vents work as a heat exchanger.

A big part of my job is to design experiments that test the solar heating system.

Hal: What things do you test?

Jessica: I test all the separate parts of the heating system, like valves, pumps, heat exchangers, adhesives, and other materials. And I test all the parts together as an entire system. I also do life-cycle testing.

Hal: Does that mean testing to see how long something will live?

Jessica: Yes...sort of. Life-cycle testing helps me determine the durability of materials used in the collectors. Right now, I'm running "quality control" tests on the absorber plates used in solar collectors. As a lab assistant, you'll be helping me with the quality control tests.

Hal: Is this the lab?

Jessica: Yes. Here is where we test the "out-gasing" properties of sealing materials used in solar collectors.

Hal: What's "out-gasing"?

Jessica: What happens in out-gasing is just like what happens inside a new closed car on a hot, sunny day, when the windows become foggy. You see, the sealants used in solar collectors contain oils--the same kind of oils used in the plastic materials in a car. When the oil in the sealants is heated up by the sun, some of the oil turns into gas. The gas condenses on the glass cover on the solar collector, just like it does on the inside surfaces of car windows. The condensation inside a solar collector cuts down on the amount of solar energy, or sunshine, that enters the collector.

Hal: So you want to cut down on out-gasing. Is that right?

Jessica. Yes. You've got it.

Hal: It sounds like designing and running experiments takes a lot of time. Do you have other work responsibilities?

Jessica: Yes. I write bi-weekly lab reports. I process the data gathered from experiments, to be sure there are no errors. Then I present the findings from experiments in terms others can understand.

Hal: What do you mean?

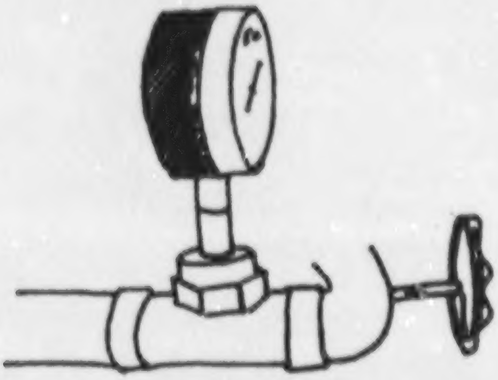
Jessica: Well, the "language" of solar research engineering is formulas used in physics and math. In fact, without having learned advanced physics and math in college, I couldn't be a solar research engineer. I use the formulas of physics and math to design experiments. The data I collect from experiments is also in formula language. I "translate" the formulas into language that can be understood by people who aren't scientists.

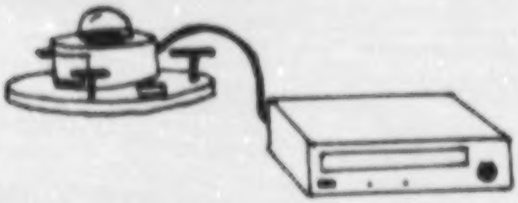
Hal: What kinds of tools do you use in your work?

Jessica: Well, I sometimes work with chemicals. That requires using a lot of care and caution. Using chemicals improperly is a major hazard in any laboratory. But all my other tools are measurement devices. I use these mechanical gauges to measure pressure.

Hal: They look like the gauges used on our water heater at home.

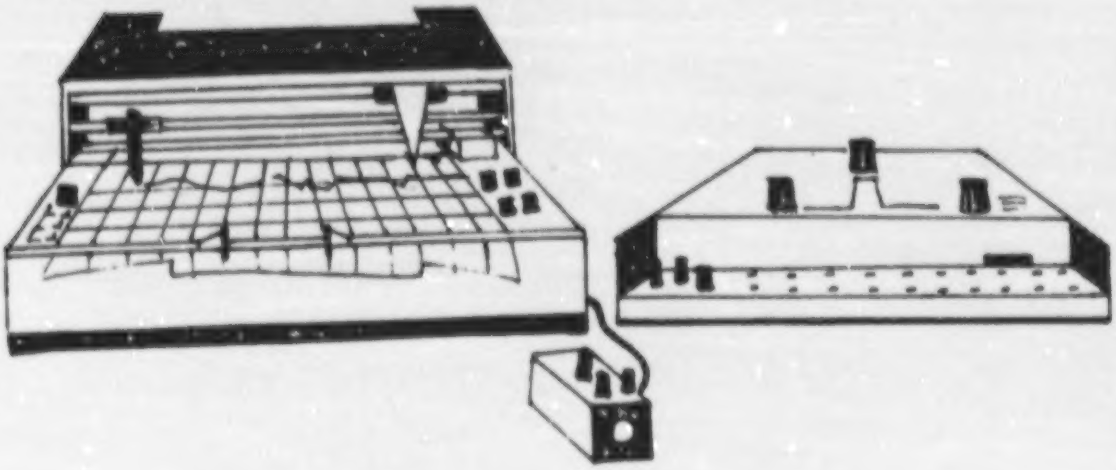
Jessica: Yes, they're the same, although these are much more precise.





Hal: This looks like an electrical tool.

Jessica: It is. It's a periheliometer. It measures light intensity. But these are my most useful pieces of equipment. The Data Plex takes electrical impulses from sensors attached to other electrical tools, like the periheliometer, and it converts the electrical impulses into numbers, like BTU's per square foot per hour.



Then this Strip Chart Recorder charts the information from the Data Plex. These tools sure save me time when I write my lab reports.

Hal: I can see I have a lot to learn, just to be able to use the tools. Learning about them must take a long time.

Jessica: I learned about most of these tools in my physics, math, and engineering courses in college. I didn't use a Data Plex or Strip Chart Recorder until I came to work here at Sol-Products. I learned to use them on the job.

Hal: How much education beyond high school would I need to get a job as a solar research engineer?

Jessica: You'd need a strong background in college physics, math, and engineering, and some employers may require an engineering degree. Many colleges offer courses in solar engineering, and many will soon offer solar engineering degrees.

Hal: I guess there are lots of chances for advancement in the field of solar engineering.

Jessica: Yes, there are. And the advancement possibilities are growing rapidly, as more and more solar research industries are set up. A person qualified to work in the field of solar research will easily find a job in almost any part of the country. It's a good field for starting your own business, too, because the public is very excited about the development of solar industry.

Hal: There sure are lots of advantages for workers in the field. What do you like best about it?

Jessica: I like the enthusiasm of the many young people, like you, entering the field. I'm looking forward to working with you.

Hal: Thanks, Jessica. When do we start working?

Jessica: Right now. Bring that condensation flask with you. We'll start running some quality control tests on a new brand of sealants!

SOLAR RESEARCH ENGINEER: QUIZ

Write 3 skills or tasks a solar research engineer performs on the job.

1. ______________________________

2. ______________________________

3. ______________________________

What is the "language" of solar research engineering?

____

Name one possible hazard in the work of a solar research engineer.

____

Write the names of 2 tools or pieces of equipment a solar research engineer uses on the job. Write what each one is used for.

	Tool or Piece of Equipment	Use
1.	______________	______________
2.	______________	______________

What training would a person need in order to get a job as a solar research engineer?

____

____

Describe the career advancement possibilities for a worker in the field of solar research engineering.

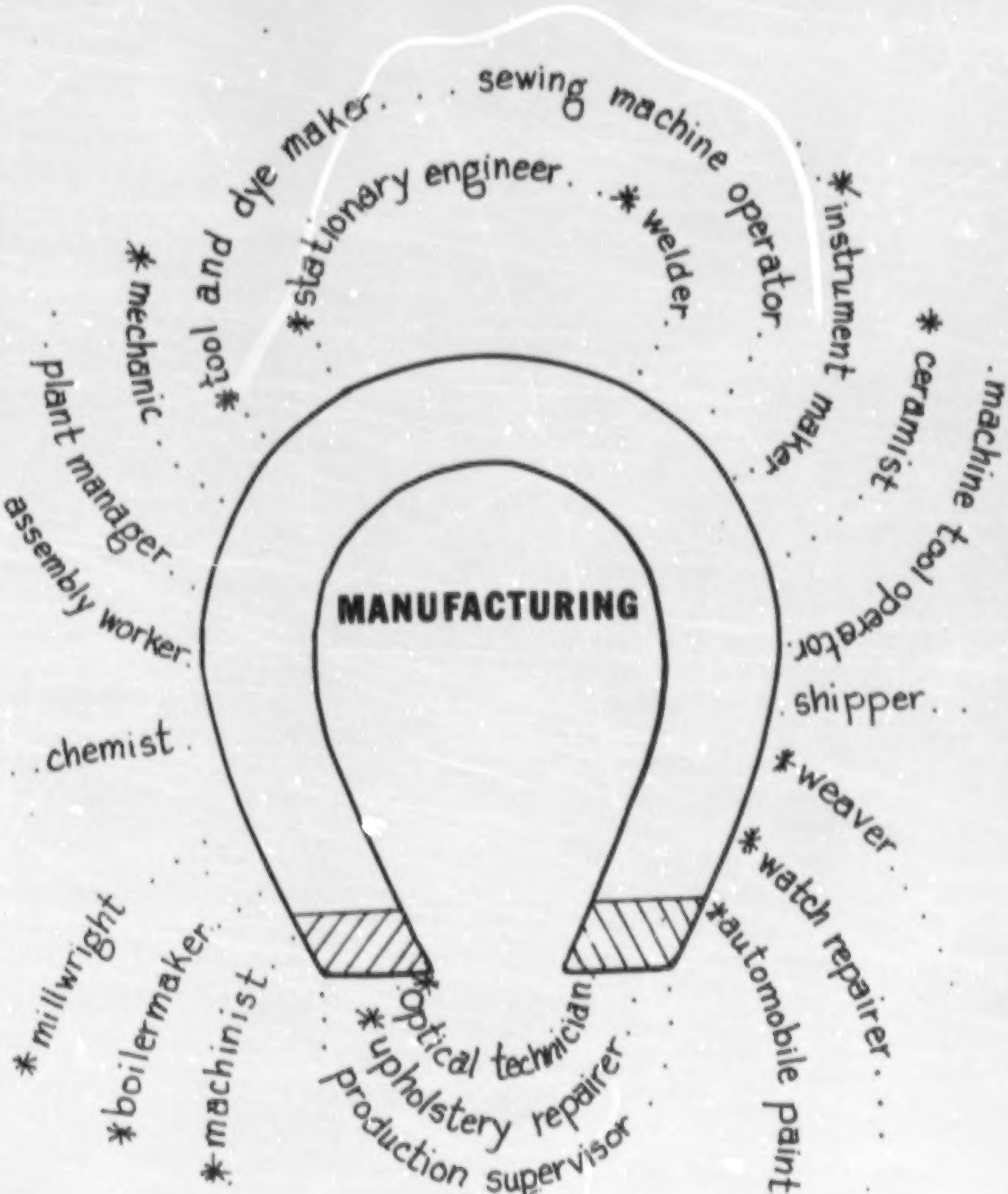
____

____

Where can a solar research engineer expect to find a job?

____

____


MANUFACTURING
sewing machine operator
*instrument maker
*ceramist
machine tool operator
shipper
*weaver
*watch repairer
*automobile painter
*optical technician
*upholstery repairer
production supervisor
*machinist
*boilermaker
*millwright
chemist
assembly worker
plant manager
*mechanic
*tool and dye maker
*stationary engineer
*welder

* Apprenticeship training is offered for each of these occupation

OPTICAL MECHANIC / BENCH TECHNICIAN

An optical mechanic makes eyeglasses prescribed by eye doctors.

SKILLS & TASKS

Orders lens from factory, where it is manufactured.

Puts lens in lensometer, which marks the center of the lens.

Puts lens in holder.

Selects "template," a pattern used to determine size and shape of lens which fits into the eyeglass frame.

Puts template and holder on a grinder, which cuts lens into the shape of the template.

Heats lens to smooth ground edges.

Cools lens with cold air from air hose.

Polishes lens.

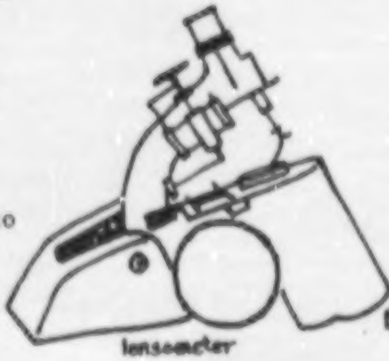
"Pops" lens into frame.

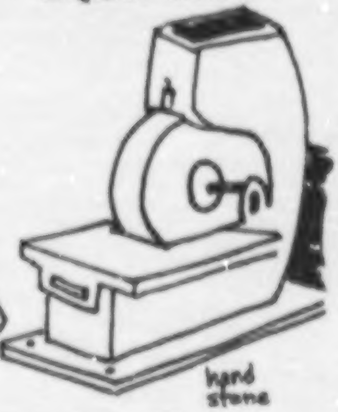
Uses small pliers, screwdrivers, and glass drills to repair damaged eyeglasses.

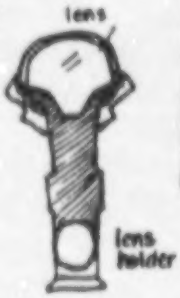
OTHER SKILLS

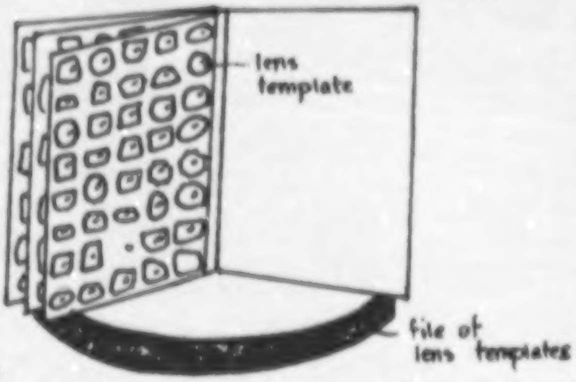
A bench technician must have good mechanical and fine motor coordination in order to do close precision work.

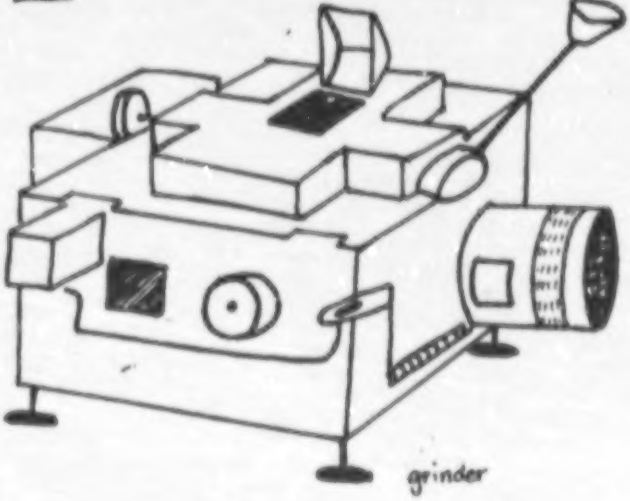
TOOLS & EQUIPMENT

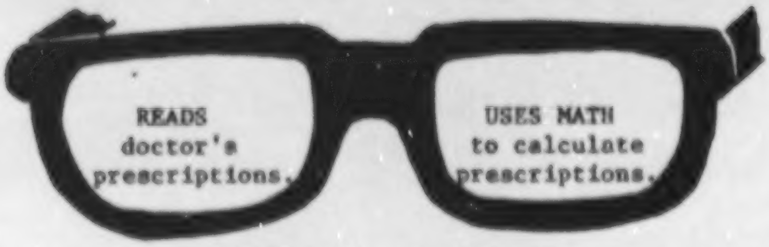

lensometer




lens
lens holder


lens template
file of lens templates





WORK PLACES

1. Offices of eye doctors who dispense eyeglasses directly to patients.
2. Laboratories where the structure, functions, and diseases of the eye are studied.
3. Retail stores that sell prescription lenses.

WORK CONDITIONS

1. Work places are well ventilated, but may be noisy because of power grinding machines.
2. Bench technicians work a standard, 40-hour week.
3. There are many employment opportunities for physically handicapped people with full use of their eyes and hands.
4. Membership in a lens grinders' union is optional, and the availability of medical insurance, vacations, sick time, and retirement plans depends on the work place.

TRAINING

1. On-the-job training, for 2-3 years, depending on size of work site.
2. Apprenticeship programs for 3-4 years.
3. Vocational schools, for 9 months full time, and additional on-the-job training.
4. Armed forces.
5. In some states, a bench technician must obtain a license before working in retail shops.

ADVANCEMENT

1. In places that employ many bench technicians, supervisory or managerial positions are available.
2. With more training, qualified bench technicians may become dispensing opticians or optometric assistants, who, in addition to making eyeglasses, fit the finished glasses on patients, and help carry out tests for prescribing eyeglasses or contact lenses.

Bench Technician

Get The Facts

Name 3 work tasks a bench technician performs on the job.

1. ____________________

2. ____________________

3. ____________________

Name 3 tools or pieces of equipment a bench technician uses on the job. Tell what each one is used for.

TOOL	USE
1. ____________	____________
2. ____________	____________
3. ____________	____________

What does a bench technician have to read on the job?

____

How does a bench technician use math skills on the job?

____

Name 2 places where a bench technician can get training.

1. ____________ 2. ____________

Name 2 positions a bench technician can advance to.

1. ____________ 2. ____________

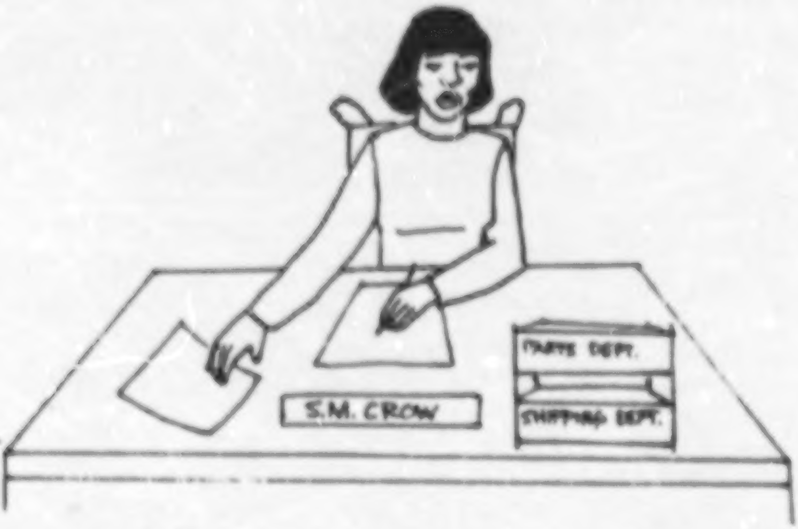
What appeals to you the most about a bench technician's work conditions?

____

____

STEPHANIE CROW:
PRODUCTION SUPERVISOR

My name is Stephanie Crow. I work in a factory that makes wooden toys for children. Doll houses and doll house furniture, cars, trucks, boats, and rocking horses are some of the wooden toys manufactured here at Toy Craft. And I'm the production supervisor of the assembly department. The assembly department puts the pieces of a toy together into a finished product. I have to make sure there are enough parts to make the toys, and I'm responsible for making sure that the parts are put together correctly so that each assembled toy is strong and sturdy. As production supervisor, I also train new workers on the job.

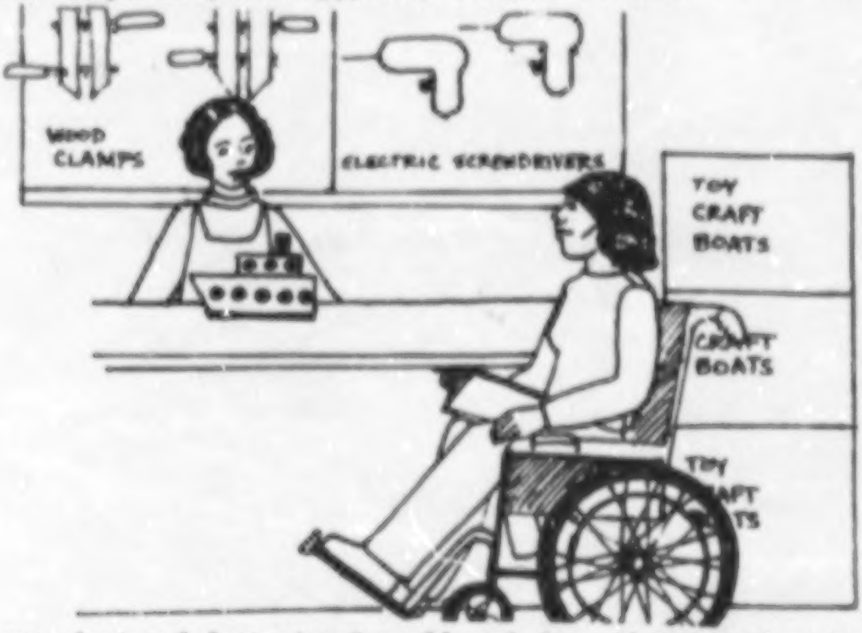

PARTS DEPT.
S.M. CROW
SHIPPING DEPT.

My work requires a lot of planning. I meet once a week with the shop manager to find out what toys the company wants put together and to plan the work the assembly department will have to do to get the job done. After the manager and I agree on what's to be done, we write up a "work order" for the assembly department. I sure use my math skills when I check to see if we have enough parts to make the number of toys required on the work order. If we don't have enough parts, I write up a "request order" and send it to the parts department. (The workers in the parts department make the pieces of the toys we assemble here.) Once I have all the parts on hand to assemble the toys, the assembly line workers can begin putting them together. As the pieces are assembled, I check to be sure the toys are put together correctly. That's quality control!

I began working for Toy Craft 5 years ago. I worked on the assembly line for 2 years, where I learned the system and routine of assembling the toys manufactured here. When there was an opening for production supervisor in the assembly department 3 years ago, I applied for the position. I got 2 months of on-the-job training for the job, and now I train the new assembly workers I'll be supervising. I also train assembly workers for putting together new toys the company designs. And when extra workers are needed to meet a deadline, I sometimes work on the assembly line, too. I still enjoy working with glue, screwdrivers, screws, and wood clamps to put wooden toys together when my help is needed. But as production supervisor, the usual tools for my work are company "work orders" and "request orders," my own planning skills, and my ability to get along well with the people I work with.

Toy Craft is the only company I've ever worked for. I like working here for lots of reasons. I work 5 days a week, 8 hours a day, with a half hour off for lunch and three 10-minute breaks during the day. Those breaks are important for people who work in assembly departments. The steady drone of the power tools and the routine of doing one task over and over again can make people forget to be careful at what they're doing. Working around any kind of power tool or piece of machinery can be dangerous if workers become careless of what they're doing. Regular work breaks are great safety precautions.

I also really appreciate the two week vacation I get every year here. And We all get paid sick days and personal days and membership in the company's health insurance plan. And Toy Craft offers great job advancement opportunities, too. I've applied for the position of shop manager which will be available in 2 months, and I know I have a good chance of getting the job. And there are higher paying jobs in the company too, that I can prepare for if I go back to school or take special company training courses. But that's for my future. Right now, I'm happy with the pace at which I'm advancing on my job.



There are plenty of factories I could work for, if I wanted to leave Toy Craft. But I like working here for all the reasons I've told you about. The most important thing for me, though, is working to make a high quality product, and the wooden toys I help make here at Toy Craft are the finest on the market. That's part of my job.

PRODUCTION SUPERVISOR: GET THE FACTS

Name 3 skills and/or tasks of a production supervisor.

1. ____________________
2. ____________________
3. ____________________

Where did Stephanie Crow get training to be a production supervisor?

____

Name 3 tools Stephanie uses on the job. Name a use for each one.

	Tool	Use
1.		
2.		
3.		

What is Stephanie's work schedule?

____

____

What is one possible hazard for workers in an assembly department?

____

____

What are 2 advantages Stephanie appreciates in her work?

1. ____________________
2. ____________________

What training would Stephanie need to advance further on her job?

____

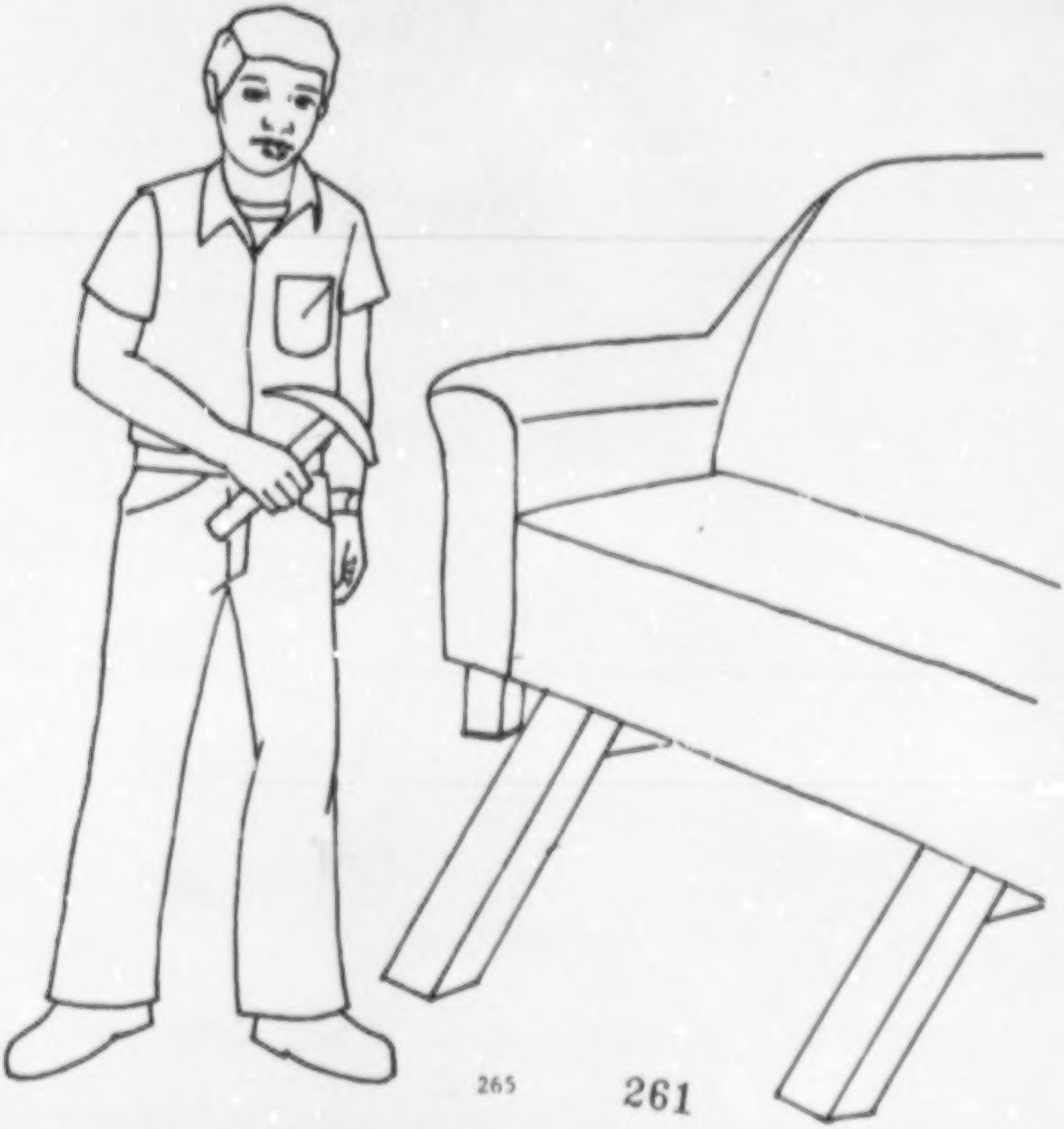
____

Name one work place for assembly workers.

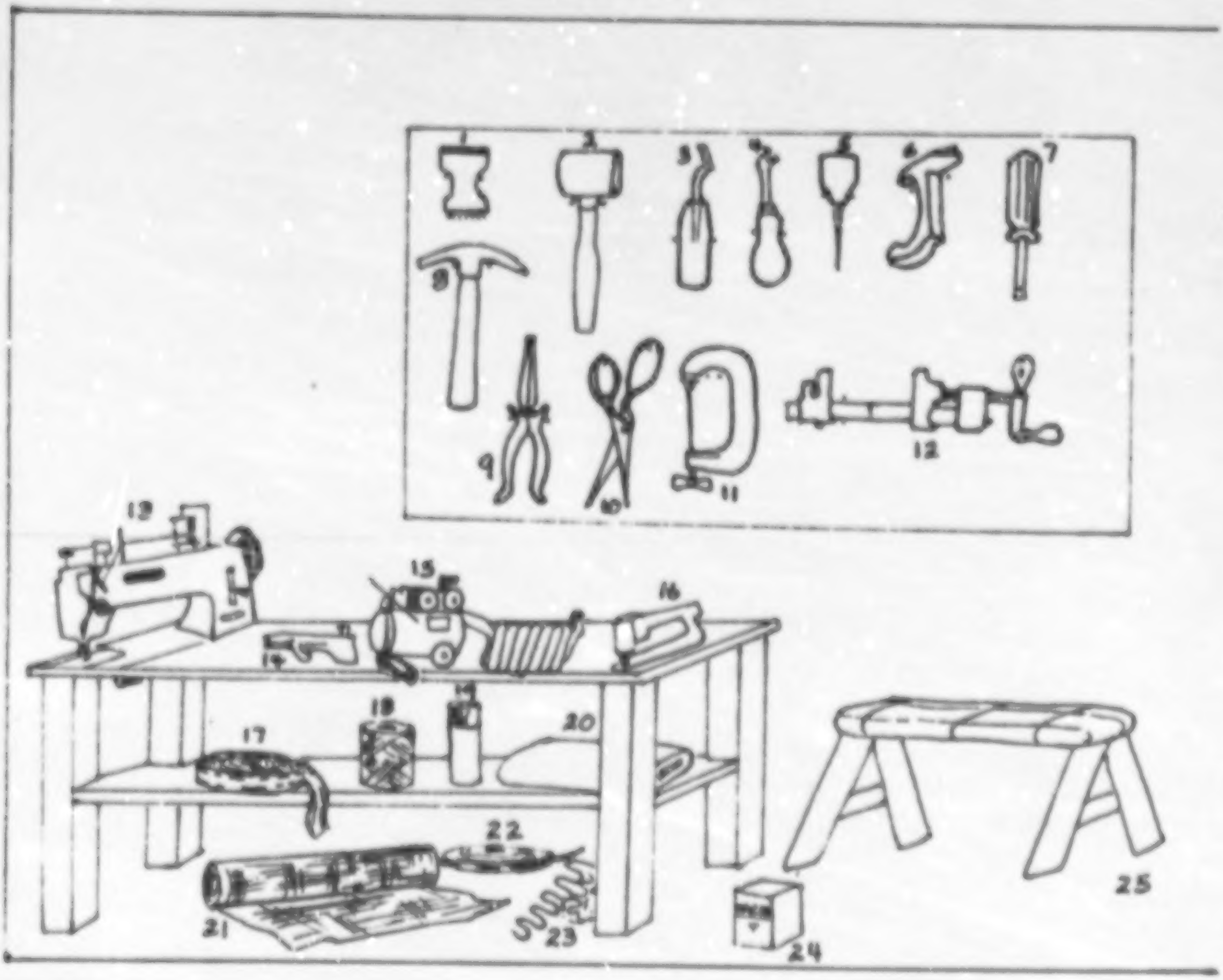
____

UPHOLSTERY REPAIRER

Upholstery is the stuffing, covering, and other materials used to make furniture like sofas and chairs soft.



The workshop is well lighted and well ventilated.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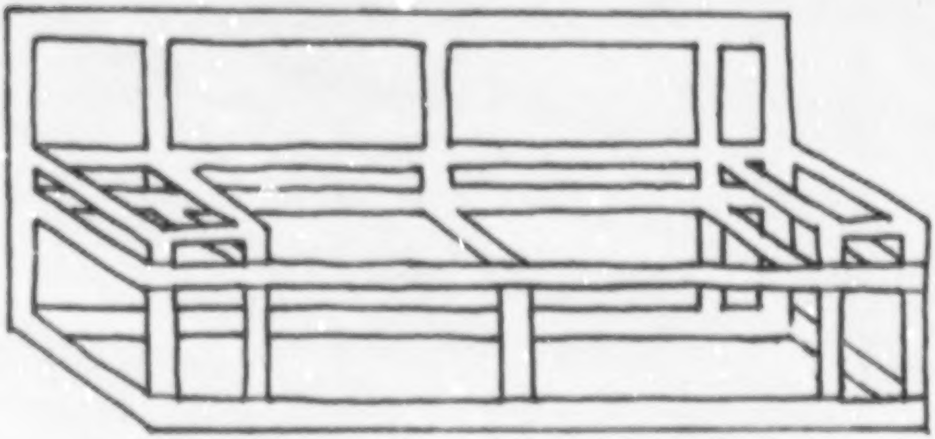
1. webbing stretcher
2. rubber mallet
3. ripping tool
4. tack puller
5. awl
6. staple puller
7. screwdriver
8. hammer
9. needle nose pliers
10. shears
11. "C" clamp
12. pony clamp
13. sewing machine
14. blo-gun
15. air compressor and hose
16. staple gun
17. webbing
18. twine
19. spray paint
20. stuffing
21. burlap
22. tack strips
23. zig zag springs
24. tacks
25. padded wooden horse

Skills & Tasks

TAKES FURNITURE APART:

1. Removes worn fabric and other materials covering springs or webbing.
2. Takes out bent or broken springs.
3. Rips out worn webbing.
4. Repairs wooden frames by regluing loose parts.
5. Replaces badly damaged wooden parts.



PUTS FURNITURE BACK TOGETHER:

1. Stretches webbing strips lengthwise and crosswise on frame.
2. Weaves webbing strips where they cross.
3. Tacks webbing strips in place on underside of furniture.
4. Places springs in position and ties them with twine.
5. Forms burlap covering for stuffing. (Stuffing pads the springs or webbing and is often made of material like horsehair or foam rubber.)
6. Sews stuffing to burlap.
7. Covers stuffing with cotton fabric, called muslin.
8. Lays out pattern.
9. Cuts fabric.
10. Sews fabric where necessary.
11. Sews finished cover onto prepared stuffing.
12. Refinishes exposed wooden parts.

Upholstery repairers in large stores may do only one task over and over, like assembl workers. Upholstery repairers in small shops do many different tasks in a working da Many upholstery repairers are self-employed, in their own shops.

Other skills needed on the job

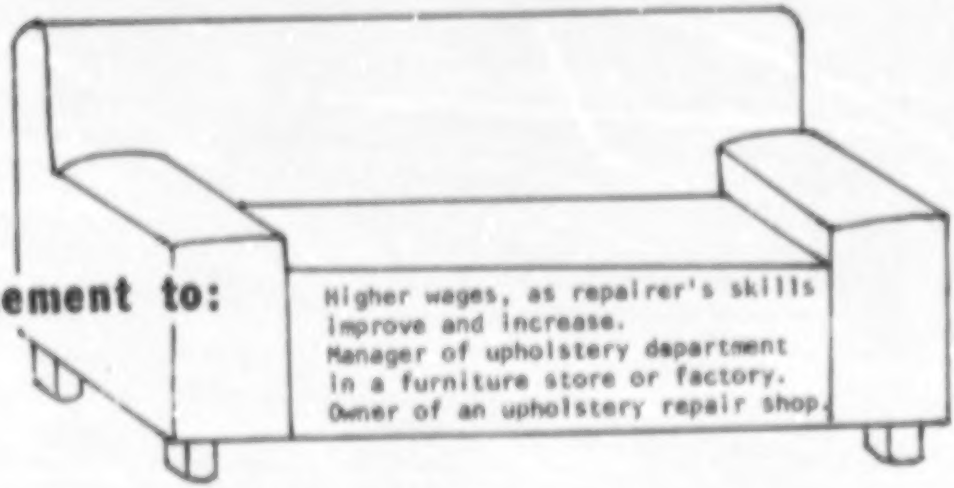
1. Physical coordination and concentration, to stretch webbing and fabric with hand tools while using mouth to put tacks in place on magnetized end of hammer.
2. Physical strength, to lift and move heavy furniture.
3. Ability to pay attention to detail.
4. Math skills, to figure out fabric yardage (including allowance for seams) and to figure prices.
5. Reading skills, to order tools and equipment from upholstery suppliers' catalogs.
6. Writing skills, to fill out order forms.
7. Business management skills, to run own shop.

Training Places

High school, vocational school, and college, for courses like "Textile Fabrics" and "Furniture Making."
Apprenticeship programs, for 3-4 years.
On the job, as an aid or helper, for 2-3 years.
Furniture factories, as an assembly worker.

Work Places

Small repair shops (fewer than 10 workers).
Furniture factories and department stores.
Large universities and chain operations like hotels, motels, theaters.



Advancement to:

Higher wages, as repairer's skills improve and increase.
Manager of upholstery department in a furniture store or factory.
Owner of an upholstery repair shop.

Hazards

Back strain, from lifting and moving heavy furniture, and from standing and bending in awkward positions while working.
Breathing dust, especially when old stuffing is removed.

Advantages

Membership in the upholsterers' trade union.
Maybe medical insurance, vacations, sick time, and retirement plan, depending on the size of the business.
Upholstery repairers who work in department stores get discounts on all their purchases

Quiz Yourself

UPHOLSTERY REPAIRER

Name 2 tools or pieces of equipment you could find in an upholstery repairer's shop.

1.________________________ 2.________________________

Name 2 tasks an upholstery repairer performs on the job.

1.____

2.____

Name 1 math skill an upholstery repairer needs on the job.

____

Name 1 thing an upholstery repairer might read on the job.

____

Name 1 other skill an upholstery repairer needs on the job.

____

Name 2 places a person can get training to become an upholstery repairer.

1.________________________ 2.________________________

Name 2 places where you might find an upholstery repairer at work.

1.________________________ 2.________________________

Name 1 hazard in an upholstery repairer's job.

____

Name 1 advantage in an upholstery repairer's job.

____

What are some possibilities of advancement for an upholstery repairer?

____

CHOICE curriculum materials were developed at Mid-Hudson Migrant Education Center and jointly funded through Career Education Incentive Act, CETA, and Chapter I, Section 143 in cooperation with Ulster County BOCES, Putnam/Northern Westchester BOCES, and Mid-Hudson Migrant Education Center, New Paltz, New York.

[1983]

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Training and consultant services available.
For information, contact:

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